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KOOTENAI RIVER WILDLIFE HABITAT ENHANCEMENT PROJECT

LONG-TERM BIGHORN SHEEP/MULE DEER
WINTER AND SPRING
HABITAT IMPROVEMENT PROJECT

Wildlife Mitigation Project

Libby Dam, Montana

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LONG-TERM HABITAT MANAGEMENT PLAN LAKE KOOCANUSA BIGHORN SHEEP AND MULE DEER WINTER AND SPRING RANGES

KOOTENAI NATIONAL FOREST LINCOLN, COUNTY MONTANA

PROJECT GOAL

Rehabilitate 3,372 acres of bighorn sheep and 16,321 acres of mule deer winter and spring ranges on Kootenai National Forest lands adjacent to Lake Koocanusa. To monitor and evaluate the effects of implementing this habitat enhancement work.

INTRODUCTION

The Libby hydroelectric project, located on the Kootenai River in northwestern Montana, resulted in several impacts to the wildlife communities which occupied the habitats inundated by Lake Koocanusa. Montana Department of Fish, Wildlife and Parks, in cooperation with the other management agencies, developed an impact assessment (Yde and Olsen 1984) and a wildlife and wildlife habitat mitigation plan (Mundinger and Yde 1985) for the Libby hydroelectric facility. In response to the mitigation plan, Bonneville Power Administration funded a cooperative project between the Kootenai National Forest and Montana Department of Fish, Wildlife and Parks to develop a long-term habitat enhancement plan for the bighorn sheep and mule deer winter and spring ranges adjacent to Lake Koocanusa.

Due to the extensive nature of the proposed habitat enhancement effort, an Environmental Assessment and associated Decision Notice were developed. The Decision Notice, signed on November 9, 1989 and implemented December 26, 1989, and the Environmental Assessment listed the actions to be completed during the first decade of implementation for the proposed thirty year plan. A long-term habitat enhancement plan is necessary to farther describe the proposed treatments, document their location, refine the treatment schedule, list the source of funding to be used for project implementation and estimate the costs associated with project implementation. In order to determine to what extent the habitat treatments obtain the anticipated results and to determine if the overall wildlife and habitat objectives are obtained, a conceptual monitoring and evaluation plan has been incorporated into this long-term plan.

The scheduled habitat enhancements have been planned to create a habitat mosaic throughout the winter and spring ranges adjacent to Lake Koocanusa. A combination of treatment type, size and scheduling has been used to spread the habitat enhancement efforts throughout the ranges. By spreading the treatments out, not only is a habitat mosaic created, but the initial short-term negative impacts of some of the treatments are also spread out. This reduces the impacts of the habitat modifications on the localized population segments which are scattered throughout the ranges.

As has been the case during development of the long-term plan, implementation, monitoring and evaluation of the long-term plan will be accomplished through direct cooperation between the Kootenai National Forest and Montana Department of Fish, Wildlife and Parks. Funding for the implementation of the plan will initially be provided from two sources; funds from the timber program for the Kootenai National Forest and the Wildlife Mitigation Trust Fund. Funds from the timber program will be used to complete the proposed timber harvest, primarily in ponderosa pine (Pinus ponderosa) and lodgepole pine (P. stands which have been infested by the mountain pine beetle (Dendroctonus ponderosae). The Wildlife Mitigation Trust Fund, established by Bonneville Power Administration with Montana Department of Fish, Wildlife and Parks to fund wildlife mitigation at Libby and Hungry Horse hydroelectric facilities, will be used to implement habitat enhancement projects where there is no associated timber harvest. Occasionally, where the timber harvest will not generate the funds necessary to cover additional activities, funding from the trust accountwillbe used for implementation of a portion of the enhancement activities.

Monitoring and evaluation of the habitat enhancement efforts will be conducted in a cooperative manner between the two implementing agencies. The primary objectives of the monitoring and evaluation effort will be: 1) to determine the long-term vegetative response to the variety of treatments used for habitat enhancement; 2) to determine the response of the bighorn sheep and mule deer populations to the habitat enhancements; and 3) to evaluate whether the objectives of the mitigation plan are adequately met. Through the monitoring and evaluation effort, the effectiveness of the various treatments will be evaluated and the principle of "Adaptive Management" implemented.

As this plan directs habitat enhancement efforts on the winter and spring ranges adjacent to Lake Koocanusa for the next decade, the implementing agencies have to utilize flexibility and adaptiveness in order for the results to be as beneficial to the wildlife resource as possible. The willingness to modify treatment types and schedules, relocate treatments, and be progressive in developing new and improved treatment methods will assure the success of the program.

MONITORING AND EVALUATION

Introduction

The conception and development of the wildlife mitigation program for the Libby hydroelectric facility has been based on several assumptions. The foremost of these are that habitat treatments can be used to enhance big game winter and spring range, and that there will be at least a 33 percent increase in the populations of the target big game species utilizing the enhanced range. The concepts uponwhich the long-term plan and the associatedhabitat treatments have been developed are considered to be state-of-the-art, sound scientific principles. The best available scientific knowledge has been used to sculpt a plan that should provide for the long-term enhancement and maintenance of the bighorn sheep and mule deer winter ranges adjacent to Lake Koocanusa. The extensive nature of this habitat management project, combined with its long-

term duration allows an excellent opportunity for the use and development of habitat treatment techniques and/or schedules which are more effective in producing and perpetuating the desired habitat conditions and animal responses.

In order to utilize the concept of adaptive management, effectiveness of the habitat treatments, and determine the response of the mule deer and bighorn sheep populations to the habitat treatments, a monitoring and evaluation program will be maintained throughout the implementation of the longterm habitat management plan. The principle of adaptive management allows for constructive changes in habitat treatments and treatment scheduling to be made as additional information onhabitat response and treatment methodologies becomes It also provides for the development and implementation of new habitat enhancement techniques which are more effective in obtaining the desired results. Monitoring and evaluation of the vegetative and animal responses will determine the effectiveness of the long-term plan. Additionally, it will allow for the incorporation of management strategies into Forest Service and MDFWP programs throughout northwestern Montana. Habitat enhancement methods which are used and evaluated on the winter ranges adjacent to Lake Koocanusa may then be used to enhance other big game winter and spring ranges, thus increasing the value of the initial monitoring effort.

To ensure the effectiveness of the program, several factors have to be incorporated into the implementation of the plan. These factors include cost of implementation, type of treatment, timing of the treatment, and climatological factors that effect the results of a treatment.

Habitat treatments are costly to implement and maintain through time. Implementation of the habitat treatments that have been incorporated into the long-term plan will not only have to provide the desired vegetative results, but will have to do it in a cost effective manner. A thorough evaluation of the benefits resulting from the treatments, compared to the costs will provide a way of directing the future financial resources of the project.

As information is obtained through the monitoring and evaluation program, the results of different habitat treatments will be compared. This comparison will demonstrate which treatments are more effective in producing the desired results. Based on the results of the comparisons, future modifications in treatments and treatment scheduling will than be made, thereby increasing the total effectiveness of the program.

Climatic conditions are highly variable between seasons, as well as years. Schedule flexibility is essential to completing the project in an efficient manner. Treatments have to be completed, advanced in scheduling or postponed as warranted by climatic conditions. Evaluation of treatments completed during various time periods and a variety of climatic conditions will produce a treatment scenario that results in the best vegetative results. If general monitoring determines the desired climatic conditions are not present in a given year than a treatment should be delayed. Conversely, if the conditions are highly favorable for a sensitive treatment, its date of implementation may be advanced.

The mitigation plan for the Libby Dam hydroelectric facility, adopted by the Northwest Power Planning Council in 1987, stated that a one-third increase (614 animals) in the wintering mule deer population would be realized if the proposed habitat enhancements were accomplished. An increase of 84 bighorn sheep within the Ural-Tweed population was also listed as an objective of the mitigation plan. These increases in animal numbers would result in pre-impoundment population levels for the mule deer and bighorn sheep herds adjacent to Lake Koocanusa.

The overall success of the mitigation project will be evaluated by the population responses which are observed. In order to determine the animal responses to the individual treatments, as well as changes in populations, an extensive monitoring program will be maintained. Monitoring of radio-collared animals, combined with systematic classification, annual browse utilization and pellet group surveys will provide seasonal and annual habitat utilization patterns and animal distributions. The population size and trend for these two big game species will be determined using appropriate computer models. Monitoring of the radio-collared animals combined with systematic animal classification surveys will provide the information needed for the determination of the various population parameters. These parameters will then be used to develop population models which will approximate the current populations, as well as projected future changes in the populations.

The monitoring and evaluation plan that is presented here is conceptual in nature. An extensive peer review during the latter part of 1990 combined with analysis of the data collected on the project to date will be used to develop the final monitoring and evaluation plan. A draft of this plan will be submitted for review by October 31, 1990.

VEGETATION

Various levels of monitoring can be used to determine the effects of the different habitat enhancement efforts. With the initiation of the Ural-Tweed bighorn sheep project in 1984 and the associated treatment of more than 1500 acres of bighorn sheep winter and spring range, an intensive vegetation monitoring effort was initiated. This effort has included the collection of a minimum of one year of pretreatment data and at least two years of post treatment data from each of the paired treatment and control areas. The information that has been collected includes: (1) browse utilization and characterization; (2) production of the grasses and forbs; (3) diversity of the grasses and forbs; (4) shrub diversity, abundance and production; and, (5) conifer size and diversity. Additionally, fixed photo plots were established in selected paired treatment/control areas to provide a visual documentation of the long-term vegetative change within a particular treatment. These photo plots also give a visual documentation of the changes in visual obscurity {hiding cover).

This monitoring effort has provided valuable information on the treatments which have been completed to date. However, the effort has been very labor intensive and is not practical to use throughout the area influenced by the long-term plan.

The extensive nature of the long-term plan requires that the monitoring effort be modified to provide useful information from an effort that can be accomplished by no more than two people within a time span of four months (April 15 to August 15). Browse utilization transects and photo plots should be used on a larger scale than the other monitoring methods. To simplify the grass, forb, shrub and tree diversity and production estimates fixed plots could be used. The number of plots per treatment/control would be reduced, however a greater amount of time per plot would be required to locate each of the plots for monitoring. Additionally, monitoring would be for one year pretreatment and two years post-treatment. Follow-up monitoring would be completed on a three to five year cycle after the second year of post- treatment monitoring.

An evaluation of the direct effects of a particular prescribed fire will also be evaluated. The mortality within the overstory canopy will be estimated by ocular examination. The fire intensity and percent of the unit which was burned will also be ocularly estimated. Comparison of these estimates to the fire prescription will aid in the evaluation of whether the treatment objectives were met.

BIGHORN SHEEP AND MULE DEER

Since December 1984 and January 1987 a sample of marked animals has been maintained within the Ural-Tweed bighorn sheep and mule deer populations, respectively. Currently there are 23 marked sheep within the population, 4 of which have functioning radio-collars. Within the mule deer population along the east shore of Lake Koocanusa there are up to 97 marked animals, of which 50 have functioning radio-collars (the fate of the neck-banded and ear-tagged animals cannot be accurately determined).

The regular monitoring of these two populations has provided a sound baseline from which to measure the response of the populations to the habitat enhancement efforts. Continued monitoring of the instrumented animals will allow for the assessment of the animal response to the enhanced areas for foraging, security and thermal cover, as well as range expansion. Additionally, regular monitoring of the instrumented animals combined with classification surveys (both aerial and on-the-ground) will provide for estimation of various population parameters, including composition by sex and age class, recruitment and mortality rates, and overall population size. Monitoring growth of the populations will be necessary to determine if the mitigation objectives for the two species are accomplished.

Determination of habitat use, with emphasis on the treatment areas, will provide for the assessment of the various habitat enhancement techniques. This in turn will allow for the implementation of the adaptive management concept. Treatment techniques, timing and location may be modified to provide improved habitat enhancements.

In order to determine the extent of use within the various treatment areas, the radio relocation surveys will be combined with regular pellet group and browse utilization surveys. These additional surveys will be used to determine the annual use, by species, within selected treatments. Because of the large number of treatment units and the similarity of several of the units, representative units will be selected for monitoring. The results which are obtained will then be extrapolated to units with similar physiographic features and treatments.

Sample Size

A sample of 5 to 10 percent of each of the two populations should be radio-collared and monitored on a regular basis. The population level for the Ural-Tweed bighorn sheep population is currently estimated at 125-150 animals. Therefore, 6 to 15 animals should be instrumented with functioning radio-collars and monitored on a regular basis.

Results of the ongoing monitoring efforts have demonstrated that the male and female segments of the population utilize different seasonal use patterns. Since the initiation of the ongoing monitoring effort in 1984, relocation information for the female segment of the population has provided interesting results: (1) The number of known lambing areas has increased from two to four; (2) there seems to be an expansion out of-the Sheep Creek nursery area into areas with similar physiographic features; and (3) the female group size during the lambing and nursery period appears to be getting smaller. These are considered to be indicators that the population is starting to disperse into areas which were previously only slightly used, and that the population is increasing.

The sample of radio-collared individuals should therefore consist of two-thirds female and one-third male. This will provide for the determination of the recruitment rate as well as habitat selection by the ewes and rams. The monitoring of these animals should be conducted at least through the first five years of the long-term plan.

The mule deer population along the east side of Lake Koocanusa from Fivemile Creek north to Koocanusa Bridge is estimated to be between 500 and 1,000 animals. Monitoring efforts to date do not allow for a more exact population estimate. Using this estimated range, 25 to 100 animals should be radio-collared and monitored on a regular basis. The current sample of 50 radio-collared females is probably a reasonable sample to maintain, at least through 1994. At that time there should be sufficient data to determine the population response to the habitat enhancement efforts.

In 1992 to 1994, the efforts should begin being shifted from the east side of the reservoir to selected areas along the west side. During the early 1970's there was limited monitoring of the mule deer populations along the west side. Little monitoring has been completed in recent years. Because of the extensiveness of the winter range along the west side combined with its broken nature, animal monitoring efforts should be directed at selected portions of the range which are considered to be representative of the entire range. The results will than be extrapolated to include the entire range.

PERSONNEL REQUIREMENTS

The diversity and extent of the long-term habitat enhancement project require that an extensive and at times intensive evaluation and monitoring program be conducted. A cooperative, interagency approach is the best method for completing the monitoring and evaluation. The overall direction of the monitoring and evaluation program would be determined by an interdisciplinary team made up of personnel from both the Forest Service and Montana Department of Fish, Wildlife

and Parks. The various on-the-ground activities would then be completed by personnel from one or both of the agencies, depending on the activity.

The monitoring and evaluation of the vegetative response would be accomplished by personnel from both agencies working in a cooperative manner. Therefore, at least one person from each agency would be required for a four month period, May through August, to conduct the necessary field investigations (browse utilization, cover, production and species diversity transects, and photo plots). Another two months will be required to enter the data into the pre-established computer files, edit the data and complete the preliminary data analyses. The computer entry and preliminary analysis will be completed by MDFWP personnel. The draft annual report of the vegetative responses and conditions will be prepared by MDFWP personnel to be reviewed by Forest Service personnel. The final report will be cooperatively submitted to the Trust Fund Advisory Committee.

The monitoring of the mule deer and bighorn sheep populations will be accomplished primarily by MDFWP personnel. Trapping, marking, relocations and aerial surveys will be systematically conducted and an annual report drafted and submitted for review. Periodic animal classification surveys will be conducted by personnel from both agencies. The results will be incorporated into the draft annual report.

The area adjacent to Lake Koocanusa contains a wide diversity of habitat types and conditions. The animal/habitat relationships that exist within this complex of habitats requires a extensive evaluation in order to adequately understand it. The amount of time, energy and resources that the mitigation/habitat enhancement project can devote to such an effort is limited when compared to the scope of the necessary project. However, the project can commit some of the necessary resources toward one or more graduate projects which would conduct the field investigations and data analysis. The graduate projects would be interagency, cooperative efforts with no one party carrying a majority of the load. This would be an efficient and effective method to accomplish the intensive investigations.

HABITAT TREATMENTS AND TREATMENT SCHEDULE

Treatment Prescriptions

SELECTIVE TIMBER HARVEST:

STH-A Selective harvest of mature and second-growth ponderosa pine and Douglas-fir used to open the overstory. A canopy will be maintained to provide security and thermal cover. In these units, timber harvest will be the main habitat management technique used to create the desired habitat conditions. Some slashing of conifer regeneration may occur. Prescribed fire to reduce logging slash and stimulate the understory vegetation will be utilized. Minimal mortality within the remaining overstory is desired.

STH-B Timber harvest units will be established to address the pine beetle problem within selected stands of lodgepole and ponderosa pine. Small

group cuts and individual tree harvest will be used to remove high risk or bug-killed trees. Some slashing of the regeneration may be utilized to reduce the competitive stress on the remaining mature trees. Timber harvest may also be used to selectively remove second-growth timber from an area which has previously been logged. This method will be used to create small openings (1-10 acres) which will be managed as foraging areas. Prescribed fire, which may be limited to the newly created openings, will be utilized as a follow-up treatment.

- STH-C Selectiveharvest ofmixedconifer stands accomplishedprimarily through helicopter sales. These are primarily ponderosa pine stands on steep, unroaded slopes. In some instances the pine beetle may be creating a management problem or the overstory canopy needs to be opened to promote growth of the understory.
- STH-D Selective timber harvest will be used to create small patch clearcuts (5-15 acres) within mixed conifer stands. These stands are primarily on spring range and the treatments will be designed to increase foraging areas. Prescribed fire will be used to reduce logging slash and stimulate the understory vegetation.

SLASH AND BURN:

S/B Conifers less than a predetermined diameter breast high (dbh) will be slashed and allowed to dry for 1 to 2 years. The size of the trees to be slashed will be determined by the amount of opening desired in the canopy. The predominant species slashed will also determine the amount of drying time needed. In selected cases, pattern slashing will be used to create the desired downed fuel levels. Prescribed fire will be used to reduce slashed material, provide further opening of the canopy and stimulate the understory vegetation. In selected cases within MA 11 areas, the treatment may consist of a prescribed burn followed by a selective slashing of the unwanted trees.

UNDERBURNS:

- UB-A prescribed fire, of cool to moderate intensity, used to reduce down and dead material, thin the overstory and stimulate the understory vegetation. Desired mortality of the mature conifer canopy and regeneration will vary by unit. The desired future condition will direct the prescription used to accomplish the burn.
- UB-B A prescribed fire used to reduce the thinning slash within a timber management unit. Minimal mortality of remaining conifers is desired. Sustained timber yield will be maintained within the unit. The understory vegetation will be stimulated by reduction of canopy cover and slash, as well as, the burning process.

Objectives/Tasks

The habitat treatments to be accomplished during the first decade are outlined in the following discussion. The treatment type, schedule, funding source and

estimated costs are presented. Costs were only estimated for those treatments that did not including logging. Treatment costs were estimated using personnel and operations estimates provided by the U.S. Forest Service. Costs for the treatments to be completed in 1993 and beyond were estimated based on 1990 costs. Treatments completed in 1989 and 1990 are included in this long-term plan. These treatments were included in the Environmental Assessment for the long-term plan, however they are logging activity which has been accomplished with funds from the Kootenai National Forest's timber program.

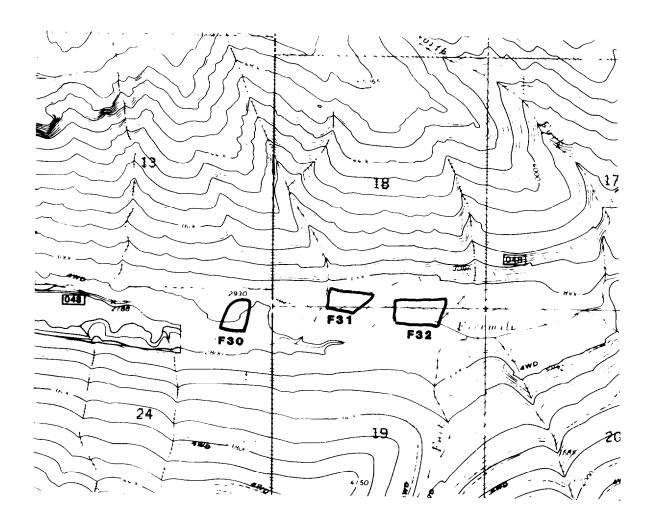
Table 1. Summary of treatment acreages and costs for the Libby Long-term Habitat Ehnancement Plan, 1989-2000.

		Timber Harvest (ac)					Treatments (ac)						
Obj.	Year	STH-A		STH-C		Total	S/B	UBA	UBB	Total	Costs (\$)	Costs/ Acre	Total Acres
1	1989		169			169							169
2	1990	301	60	345	365	1,071							1,071
3	1991	379			80	459	923	904	95	1,922	176,110	91.63	2,381
4	1992	624	10	381		1,015	456	458		914	99,892	109.29	1,929
5	1993	488				488	1,009	347		1,356	158,643	116.99	1,844
6	1994	402				402	897	885		1,782	163,126	91.54	2,184
7	1995	868	205		40	1,113	551	262		813	75,075	92.34	1,926
8	1996	463	120		101	684	578	420		998	83,145	83.31	1,682
9	1997						588	205		793	105,480	133.01	793
11 10	1998 1999			215		215	524 737	229 154	100 89	991 842	124,558 104,059	125.69 123.59	1,057 991
12	2000							165	129	294	16,961	57.69	294
Total		3,525	564	941	586	5,616	6,263	4,029	413	10,705	1,107,049	103.41	16,321

Objective 1: Rehabilitate bighorn sheep and mule deer winter and spring ranges adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1989.

Year	Ranger Di stri ct	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1989	Canoe Gul ch	1. 1	Fivemile Creek	F30 F31	7 10	STH-B STH-B	USFS USFS	*
	Canoe Gul ch	1. 2	Uarland Creek Timber	F32 WCT1 WCT2	12 79 61	STH- B STH- B STH- B	USFS USFS USFS	* *
Total		2		S	169			

 $^{^{}st}$ Costs estimated only for slash and burn and prescribed ${\it burn}$ treatments.



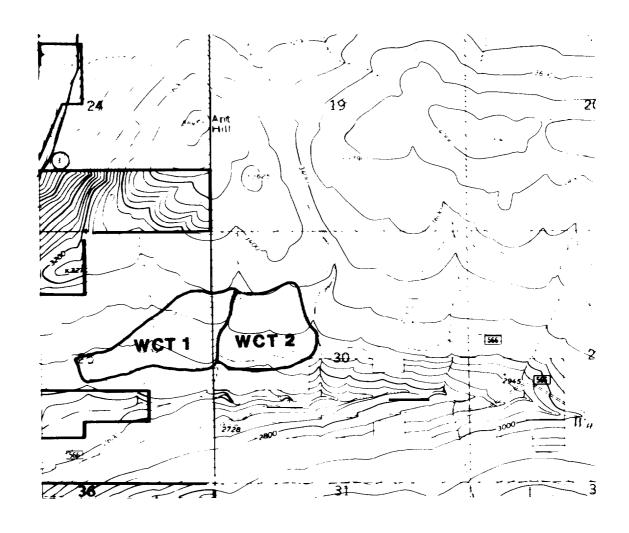
Task 1.1 Three small forage openings will be created by regeneration harvest on 20 of 29 acres at Sites F30, F31, F32 in Fivemile Creek (Section 18/19, T32N, R27W and Section 24, T32N, R28W). A prescribed burn will be done the following spring on 29 acres to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1991

<u>Funding</u> USFS: Sale preparation, administration an slash

disposal.

Trust: Prescribed burn if not funded by sale



Task 1.2 The forest canopy will be opened on 140 acres at sites WCT1 (
Section 25, T32N, R29W) and WCT2 (Section 30, T32N, R28W) by
selective harvest of ponderosa pine. A strip head fire will be
conducted the following year to reduce down and dead material,
stimulate understory vegetation and limit conifer encroachment.

Burn: 3/15 - 4/15, 1990-1991

Funding USFS: Sale preparation, administration and slash

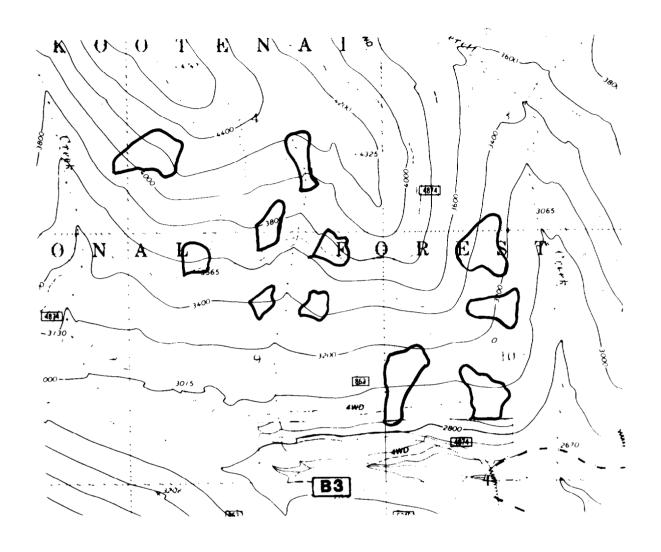
disposal.

Trust: None - funded by FS sale proceeds.

Objective 2: Rehabilitate bighorn sheep and mule deer winter and spring ranges adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1990.

Year	Ranger Di stri ct	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	casts (\$)
1990	Canoe Gulch	2. 1	Bristow Creek	В3	152	STH- A	USFS	*
	Canoe Gul ch	2. 2	Fivemile Creek	F1	149	STH- A	USFS	*
	Canoe Gul ch	2. 3	Dunn Creek	DT1	30	STH- B	USFS	*
	Rexford	2. 4	gig/Parsnip Creeks	BP9	30	STH-B	USFS	*
	Canoe Gul ch	2. 5	Barron Creek	BA1	147	STH-C	USFS	*
	Canoe Gul ch	2. 6	Souse Gulch	S1	98	STH- C	USFS	*
	Canoe Gul ch	2. 7	Zeigler Mountain	ZV1	100	STH-C	USFS	*
	Canoe Gul ch	2. 8	Barron Creek	BA4	213	STH-D	USFS	*
	Canoe Gul ch	2. 9	Zeigler Mountain	26	54	STH-D	USFS	*
			_	Z10	26	STH-D	USFS	• *
	Rexford	2. 10	N. Fk. Parsni p Cr.	NFP4	72	STH- D	USFS	*
Total		10		11	1071			

 $f \star$ Costs estimated only for slash and burn and prescribed burn treatments.



Task 2.1 The forest canopy will be opened on 152 acres at site B3 in Bristow Creek (Sections 4,9 and 10, T32N, R29W) by selective harvest of 116 acres of mature forest. A limited forest canopy will be maintained to provide security and thermal cover.

Some slashing of conifer regeneration may occur. A prescribed fire will be conducted following treatment to reduce logging slash and stimulate growth of the understory vegetation.

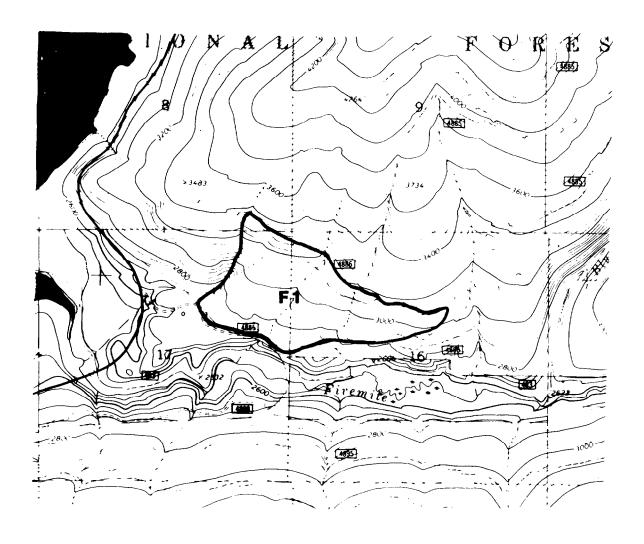
<u>Schedule</u> Log: 1990-1991

Burn: 4/1 - 5/15, 1991-1992

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



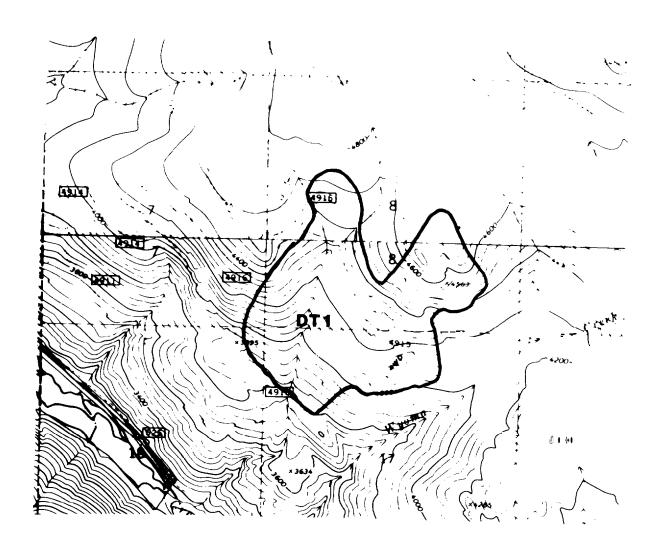
Task 2.2 The forest canopy will be opened on 149 acres within the Fivemile Creek drainage, F1, (Sections 16 and 17, T32N, R28W) by selective harvest of 74 acres of mature forest. A limited forest canopy will be maintained to provide security and thermal cover. Some slashing of conifer regeneration may occur. A prescribed fire will be used as a follow-up treatment to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1991

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: None - funded by sale proceeds.



Task 2.3 A forage opening will be created by regeneration harvest on 30 acres at site DT1 in Dunn Creek (Sections 8 and 17, T3ON, R28W). A prescribed burn will be done the following spring to reduce logging slash and stimulate growth of the understory vegetation.

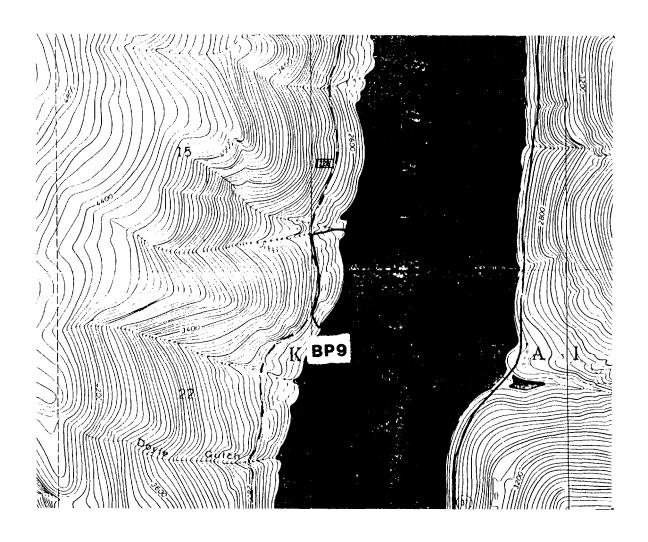
<u>Schedule</u> Log: 1990-1991

Burn: 4/15 -5/30, 1992-1993

Funding USFS: Sale preparation, administration and slash

disposal.

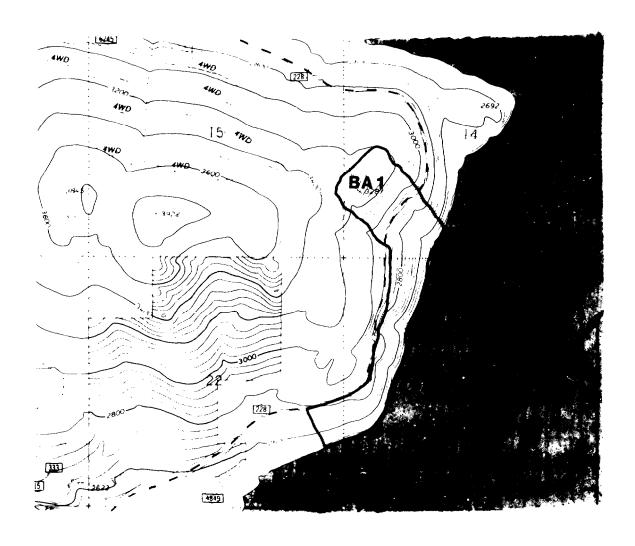
Trust: Prescribed burn if not funded by sale



Pine beetle infested lodgepole pine will be harvested from 30 acres at site BP9 located between Big Creek and Parsnip Creek (Section 23, T34N, R29W). A prescribed fire will be used to reduce the logging slash and stimulate the growth of the understory vegetation. The treatment should allow for the retention of the other conifers located within the unit.

Burn: 4/1 - 5/15, 1991

Funding Trust: Prescribed burning if not covered by sale



Task 2.5 The forest canopy will be opened on 134 of 147 acres at Site BAl in Barron Creek (Section 14/23, T32N, R29W) by selective harvest primarily of ponderosa pine, A prescribed fire will be conducted the following year on 301 acres to reduce logging slash and stimulate growth of the understory vegetation.

<u>Schedule</u> Log: 1990

Burn: 4/1 - 5/15, 1991

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



Task 2.6 The forest canopy will be opened on 98 acres at site \$1 in Souse Gulch (Section 28, T31N, R29W) by selective harvest primarily of ponderosa pine. A prescribed fire will be conducted the following year to reduce logging slash and stimulate growth of the understory vegetation.

<u>Schedule</u> Log: 1990-1991

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1991-1992

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



Task 2.7 The forest canopy will be opened on 70 of 100 acres at site ZVl on Zeigler Mountain (Section 12, T32N, R29W) by selective harvest primarily of ponderosa pine. A prescribed fire will be conducted the following year on 100 acres to reduce logging slash and stimulate growth of the understory vegetation.

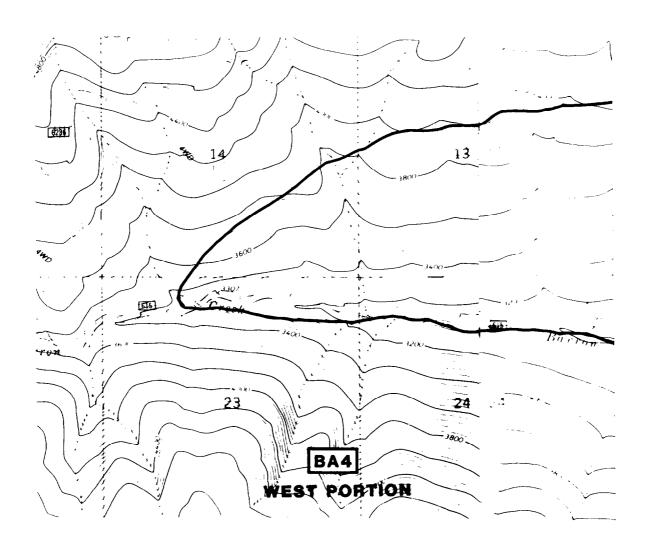
<u>Schedule</u> Log: 1990-1991

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1991-1992

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



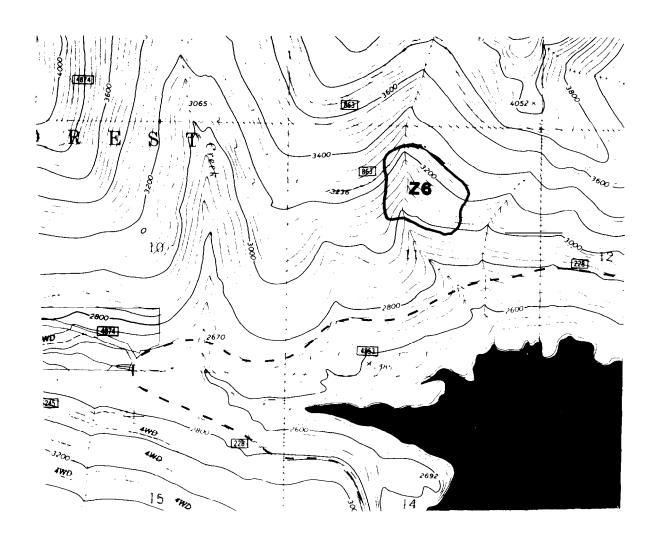
Task 2.8 Small forage openings will be created throughout 213 acres in mixed conifer stands in the Barron Creek drainage, BA4, (Sections 16, 17, 18, 19, 20 and 21, T32N, R29W and Sections 13, 14, 23, and 24, T32N, R30W). A prescribed fire will be conducted to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15 and 9/1 - 10/15, 1991-1992

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



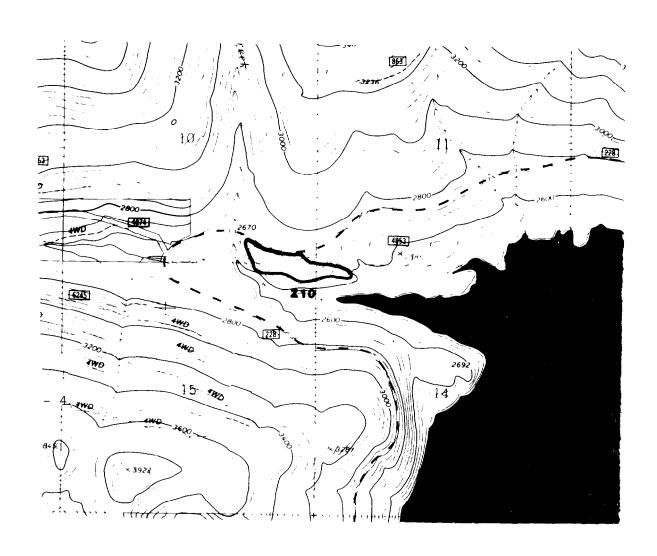
Task 2.9 Small forage openings will be created on 41 of 80 acres of second growth timber at Sites Z6 (54 acres) and Z10 (26 acres) on Zeigler Mountain (Sections 11 and 10, T32N, R29W respectively). A prescribed fire will be conducted the following year to reduce logging slash and stimulate understory vegetation.

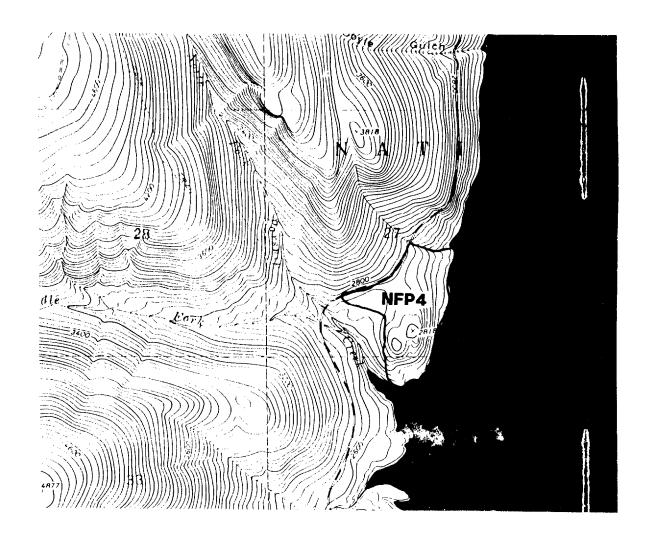
Burn: 4/1 - 5/15, 1991-1992

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale





Task 2.10 The forest canopy will be opened by using small group cuts and individual tree harvest of high risk or bug-killed lodgepole and ponderosa pine over an area of 72 acres in the North Fork Parsnip Creek drainage, NFP4, (Section 27, T34N, R29W). A prescribed fire will be used the following year to reduce the logging slash and stimulate growth of the understory vegetation.

Schedule Log: 1990 or 1991

Burn: 4/1 - 5/15, 1991 or 1992

Funding USFS: Sale preparation, administration and slash

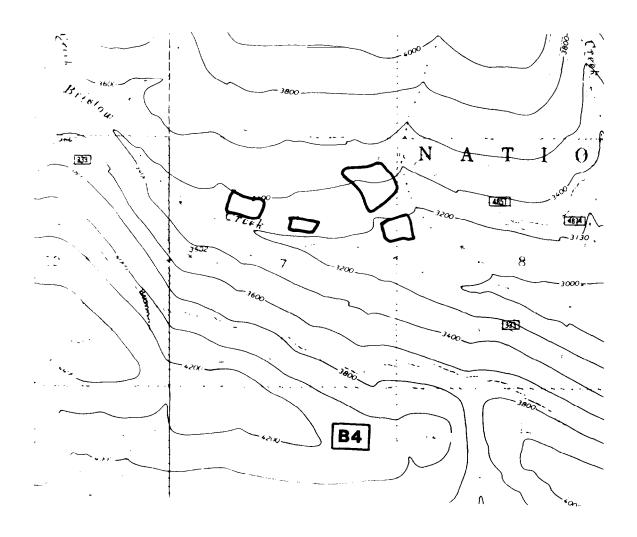
disposal.

Trust: Prescribed burn if not funded by sale

Objective 3 Rehabilitate bighorn sheep and mule deer winter and spring ranges adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1991.

Year	Ranger Di stri ct	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1991	Canoe Gul ch	3. 1	Bristou Creek	В4	18	STH- A	USFS	*
	Canoe Gul ch	3. 2	Jackson Creek	JC10	10	STH-A	USFS	*
				JC11	26	STH-A	USFS	*
				JC12	22	STH-A	USFS	*
	Canoe Gul ch	3. 3	Little Jackson Creek	LJ3	25	STH-A	USFS	*
	Canoe Gul ch	3. 4	Dunn Creek	DU2	107	STH-A	USFS	*
	Canoe Gul ch	3. 5	Fivemile Creek	F24	127	STH-A	USFS	*
	Canoe Gul ch	3. 6	Fivemile Creek	F33	44	STH- A	USFS	*
	Canoe Gul ch	3. 7	Barron Creek Bay	BB4	80	STH-D	USFS	*
	Canoe Gul ch	3. 8	Al exander Creek	AX8	129	S/B	Trust	22, 014
	Canoe Gul ch	3. 17	Fivemile Creek	F23	45	S/B	Trust	6, 789
	Rexford	3. 9	Big Creek	BC3	100	S/B	Trust	14, 777
	Rexford	3. 10	C-Branch	CB6	212	S/B	Trust	23, 737
	Rexford	3. 11	Gei bl er Creek	G1	116	S/B	Trust	16, 637
	Rexford	3. 12	Green Basin	GB8	329	S/B	Trust	34, 742
	Rexford	3. 13	Young Creek	Y1	34	S/B	Trust	9, 737
	Li bby	3. 14	Horse Range	LD7	165	UBA	Trust	6, 072
	Canoe Gul ch	3. 15	Canoe Gul ch	CG10	40	UBA	Trust	4, 569
	Canoe Gul ch	3. 16	Little Jackson Creek	LJ1	30	UBA	Trust	4, 469
	Canoe Gul ch	3. 18	Cripple Horse Creek	CH8	160	UBA	Trust	4, 743
				CH9	210	UBA	Trust	6, 226
	Canoe Gul ch	3. 19	Uarl and Creek	WC4	80	UBA	Trust	4, 769
	Rexford	3. 20	Green Basin	GB6	74	UBA	Trust	5, 534
	Rexford	3. 21	Tenmile Creek	TM5	100	UBA	Trust	6, 054
	Canoe Gul ch	3. 22	Cripple Horse Creek	CH17	95	UBB	Trust	5, 241
Total		22		25	2, 378			176, 110

 $^{^{\}ast}$ Cost estimated only for slash and burn and prescribed burn treatments.



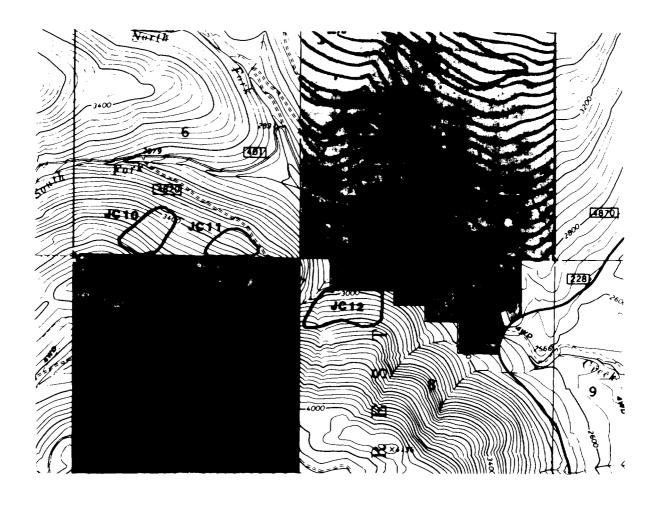
Task 3.1 The forest canopy will be opened on 18 acres at site B4 within the Bristow Creek drainage (Section 7, T32N, R29W) by selective harvest of mature forest. A limited forest canopy will be maintained to provide security and thermal cover. Some slashing of conifer regeneration may occur. A prescribed fire will be conducted following treatment to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1992-1993

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



Task 3.2 The forest canopy will be opened on units of 10, 26, and 22 acres at sites JC10, JC11, JC12, respectively, within the Jackson Creek drainage (Sections 11 and 12, T31N, R30W and Sections 6 and 8, T31N, R29W) by selective harvest of mature and second-growth ponderosa pine and Douglas-fir. Slashing of non-merchantable conifers may occur. Prescribed fires will be conducted the following year on all sites (total 58 acres) to reduce the logging slash and stimulate growth of the understory vegetation.

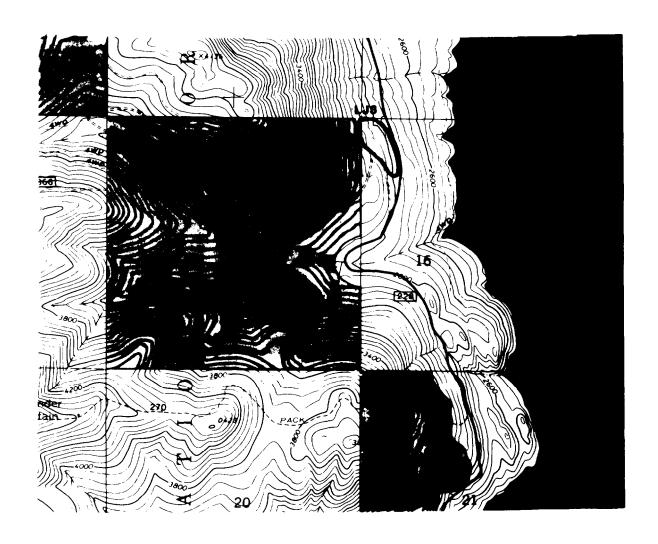
<u>Schedule</u> Log: 1991-1992

Burn: 9/1 - 10/15, 1992-1993

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



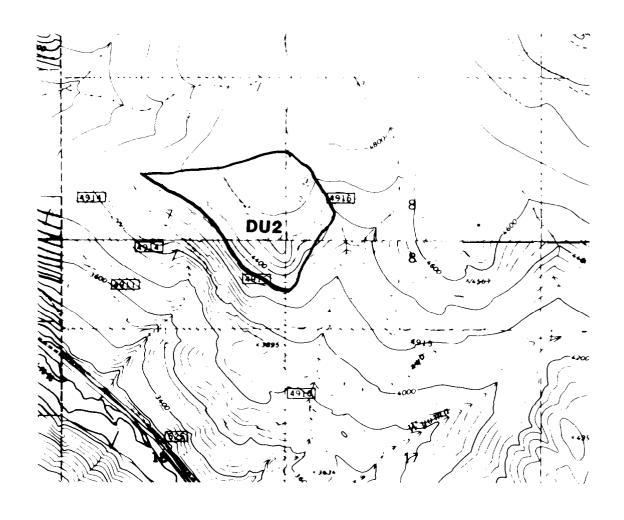
Task 3.3 The forest canopy will be opened on 25 acres at site LJ3 in Little Jackson Creek (Section 16, T31N, R29W) by selective harvest of 25 acres of mature forest. A limited forest canopy will be maintained to provide security and thermal cover. Some slashing of conifer regeneration may occur. A prescribed fire will be conducted following treatment to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1992

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



Task 3.4 The forest canopy will be opened on 40 of 107 acres at site DU2 by selective harvest of mature and second-growth ponderosa pine and Douglas-fir in the Dunn Creek drainage (Sections 7 and 8 , T30N, R28W). Some slashing of smaller, non-merchantable trees may occur. A prescribed fire will be conducted the following year on 107 acres to reduce the logging slash and stimulate growth of the understory vegetation.

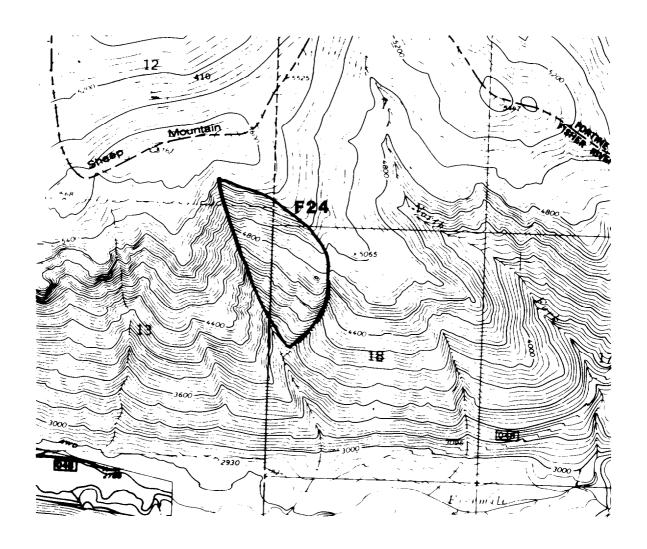
<u>Schedule</u> Log: 1991

Burn: 4/1 - 5/15, 1992

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale

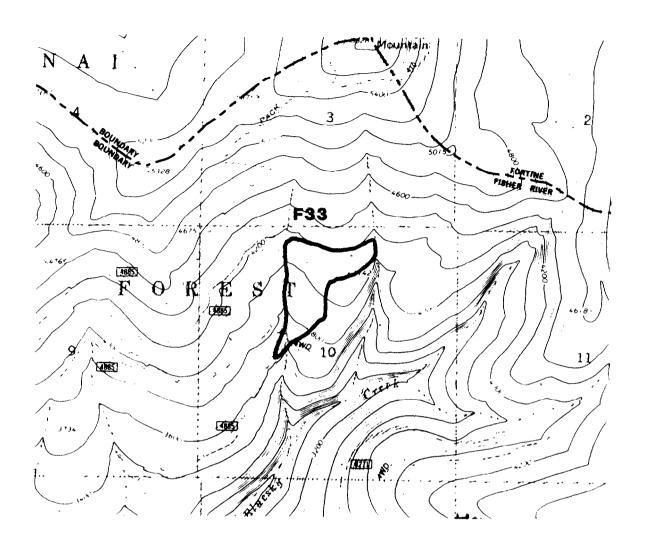


Task 3.5 Selective timber harvest of 127 acres within the Fivemile Creek drainage (F24, Sections 7 and 8, T32N, R27W and Sections 12 and 13, T32N, R28W) will be used to open the forest canopy. A follow-up prescribed burn will be used to reduce the logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1992

Funding USFS: Sale preparation, administration and slash

disposal.



Task 3.6 The forest canopy will be opened on 44 acres at Site F33 in Fivemile Creek (Section 10, T32N, R28W). This stand is dead lodgepole killed by the mountain pine beetle. Following logging, a prescribed fire will be conducted in conjunction with Site F11 to reduce logging slash and to stimulate understory vegetation. Logging may not generate enough proceeds to burn both F11 and F33.

Burn: 4/1 - 5/30, 1992

Funding USFS: Sale preparation, administration, and slash

disposal.

BPA: Prescribed burn if not funded by sale.



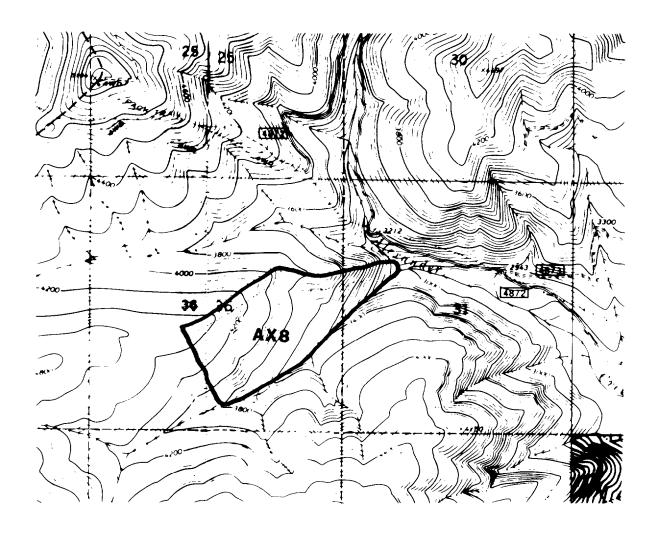
Task 3.7 The forest canopy will be opened by selective harvest of 10 acres of mature forest in the **Barron** Bay area, BB4, (Section 34, T32N, R29W). A prescribed fire will be conducted on 80 acres following harvest to reduce logging slash and stimulate the growth of the understory vegetation.

Burn: 4/1 - 5/15, 1992

Funding USFS: Sale preparation, administration and slash

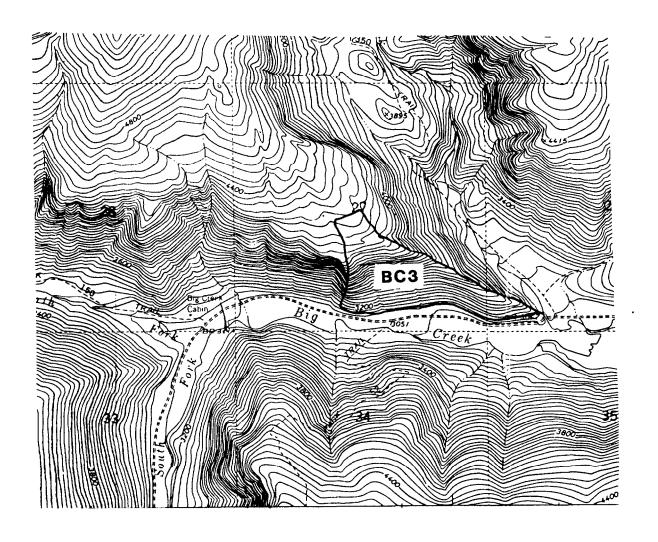
disposal.

Trust: Prescribed burn if not funded by sale



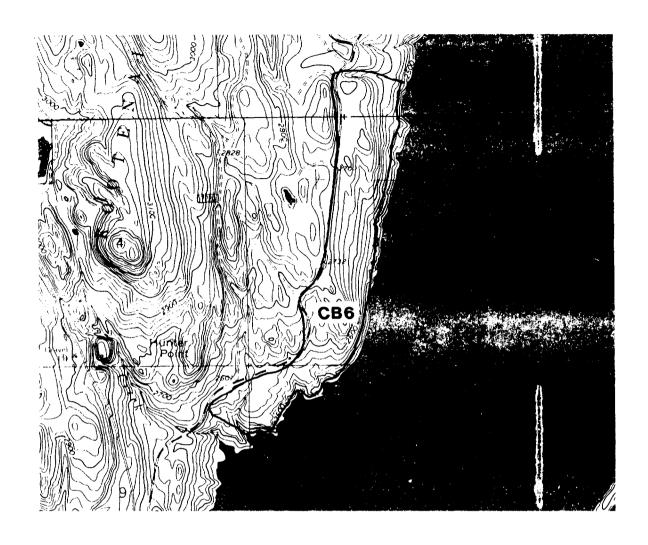
Task 3.8 Forage production will be stimulated on 129 acres in the Alexander Creek drainage, AX8, (Section 36, T31N, R30W) by selective slashing of small trees and followed up by a prescribed fire to reduce the slash, reduce the shading from small trees, and stimulate the growth of the understory vegetation.

Burn: 4/1 - 5/15, 1992



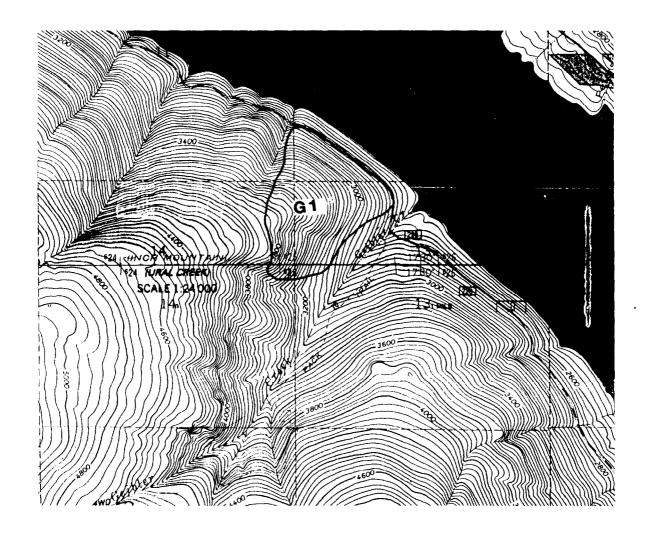
Task 3.9 Non-merchantable conifers will be slashed to open the forest canopy on 100 acres at a site within the Big Creek drainage, BC3, (Sections 26 and 27, T35N, R30W). A cool to moderate intensity prescribed fire will be conducted after the treatment to reduce logging slash and to stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1992



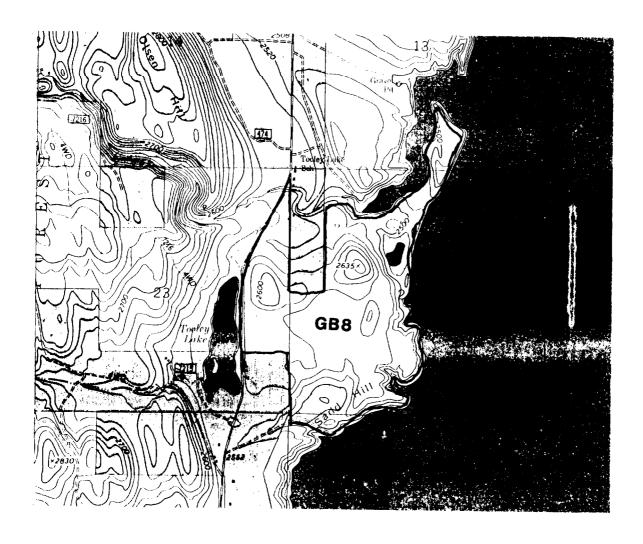
Task 3.10 Non-merchantable conifers will be slashed to open the forest canopy on 212 acres within the C-Branch drainage, CB6, (Sections 3 and 10, T36N, R28W). A cool to moderate intensity prescribed fire will be conducted after the treatment to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1992



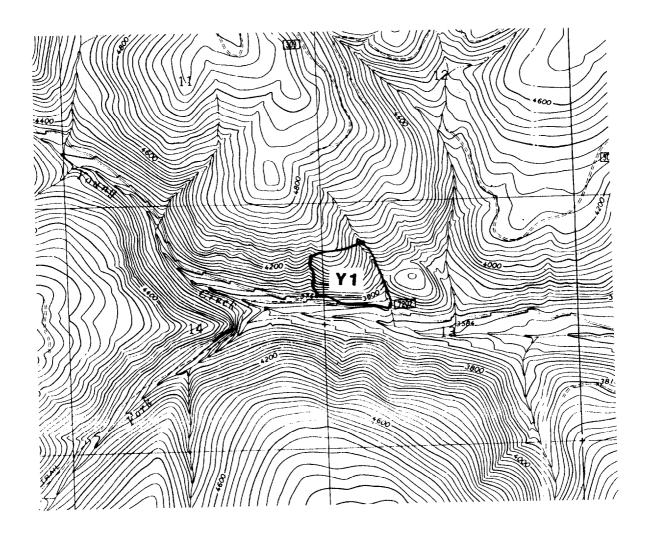
Task 3.11 Non-merchantable conifers will be slashed to open the forest canopy on 116 acres within the Geibler Creek drainage, Gl, (Sections 12 and 13, T33N, R29W). A cool to moderate intensity prescribed fire will be conducted after the treatment to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1992



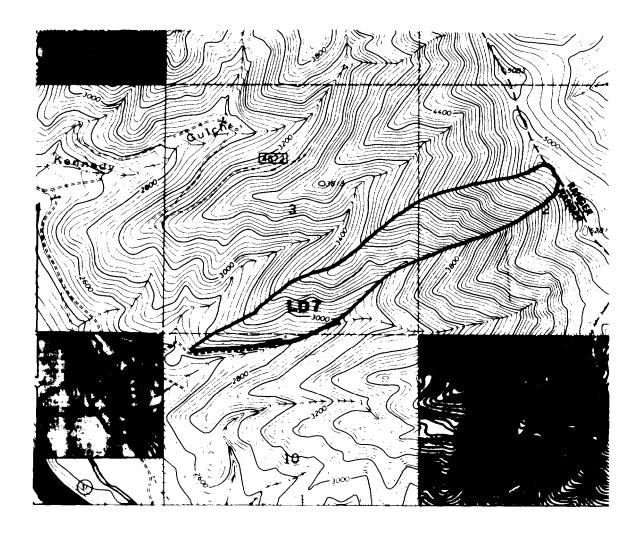
Task 3.12 Non-merchantable conifers will be slashed to open the forest canopy on 329 acres in Green Basin, GB8, (Sections 23 and 24, T37N, R28W). A cool to moderate intensity prescribed fire will be conducted after the treatment to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1992



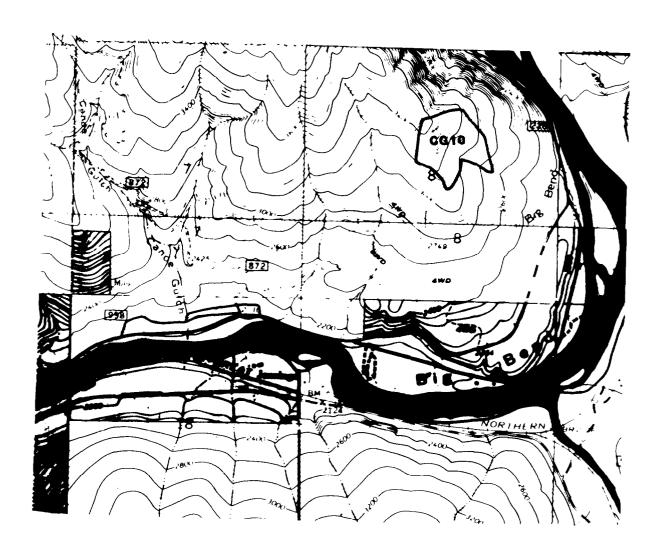
Task 3.13 Forage production will be stimulated on 37 acres in the Young Creek drainage (Y1, Sections 13 and 14, T37N, R29W) by selective slashing of small trees followed by a prescribed fire to reduce the slash, reduce the shading from small trees, and stimulate the growth of the understory vegetation.

Burn: 4/1 - 5/15, 1992



Task 3.14 A prescribed fire will be used on 165 acres on the Libby Ranger District (LD7, Sections 2 and 3, T30N, R30W) to thin the conifers and stimulate growth of the understory vegetation.

<u>Schedule</u> Burn: 3/15 - 4/15, 1991



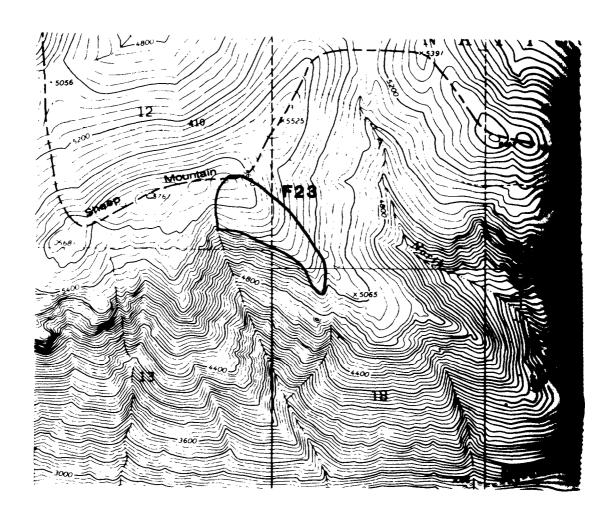
Task 3.15 A prescribed fire will be used on 40 acres in Canoe Gulch (CG10, Section 8, T30N, R29W) to reduce the conifers and stimulate the growth of the understory vegetation.

<u>Schedule</u> Burn: 3/15 - 4/15, 1991



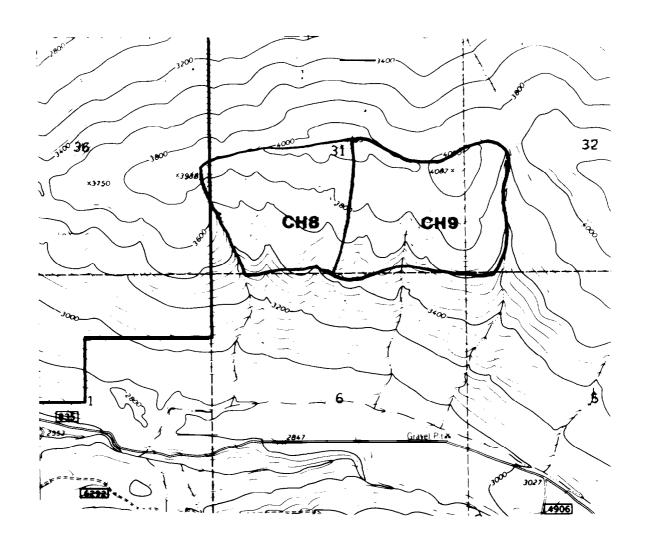
Task 3.16 A prescribed fire will be used on 30 acres in the Little Jackson Creek drainage (LJ1, Sections 16 and 21, T31N, R29W) to thin the conifers and stimulate growth of the understory vegetation.

<u>Schedule</u> Burn: 4/1 - 5/15, 1991



Task 3.17 Non-merchantable conifers will be slashed to open the forest canopy on 45 acres at site F23 (Section 7, T32N, R27W and Section 12, T32N, R28W) within the Fivemile Creek drainage. A cool to moderate intensity prescribed fire will be conducted after the treatment to reduce logging slash and stimulate growth of the understory vegetation.

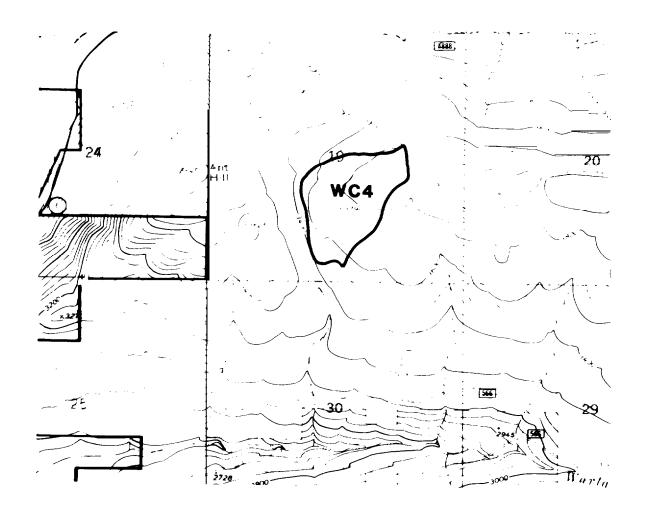
<u>Schedule</u> Burn: 4/1 - 5/15, 1991



Task 3.18 Prescribed fires will be used on two sites (370 acres) in the Cripple Horse Creek drainage (160 acres, CH8, Section 31, T32N, R28W; 210 acres, CH9, Sections 31 and 32, T32N, R28W) to thin the conifers and stimulate growth of the understory vegetation. Some slashing of the smaller conifers may be needed to obtain the desired results.

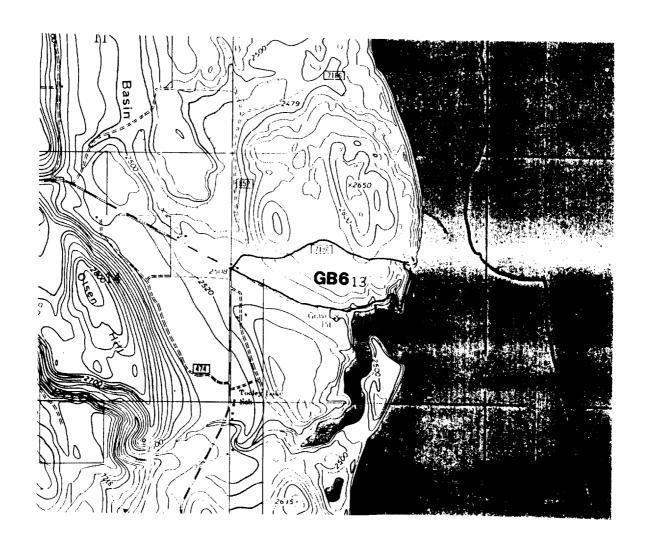
<u>Schedule</u> Burn: 4/1 - 5/30, 1991

Funding Trust: Slashing, if needed, and prescribed burn.



Task 3.19 A prescribed fire will be used on 80 acres in the Warland Creek drainage (WC4, Section 19, T32N, R28W) to thin the conifers and stimulate growth of the understory vegetation.

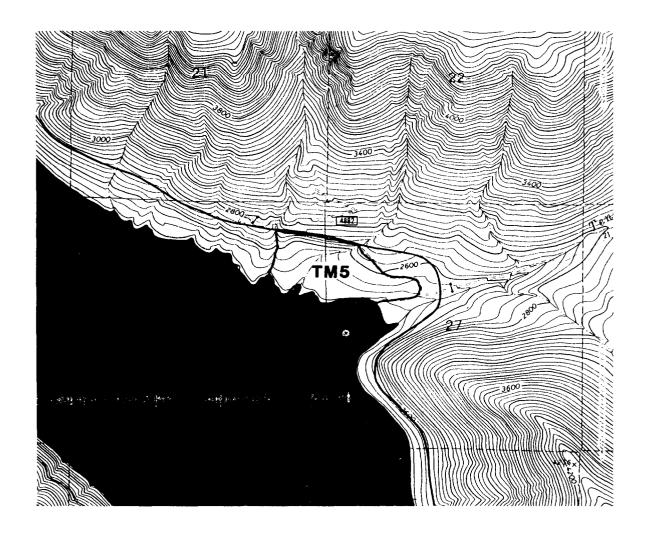
<u>Schedule</u> Burn: **4/1 - 5/15**, 1991



Task 3.20 A prescribed fire will be used as a follow-up treatment on the 74 acres in Green's Basin, GB6, (Section 13, T37N, R28W). This unit was selectively slashed under the Short-term Plan. The prescribed fire, of cool to moderate intensity, will be used to reduce the down and dead material, thin the overstory, stimulate growth of the understory vegetation, and limit conifer

encroachment.

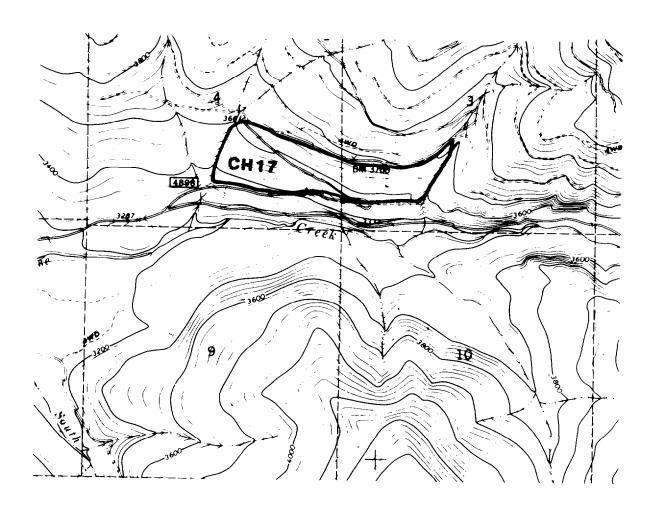
<u>Schedule</u> Burn: **4/1 - 5/15**, 1991



Task 3.21 A prescribed burn will be conducted on 100 acres within the Tenmile Creek drainage, TM5, (Sections 27 and 28, T33N, R28W) using a cool to moderate intensity fire to reduce down and dead material, thin the overstory, stimulate growth of the understory vegetation and to limit conifer encroachment.

<u>Schedule</u> Burn: 4/1 - 5/15, 1991

<u>Funding</u> Trust: Prescribed burn.

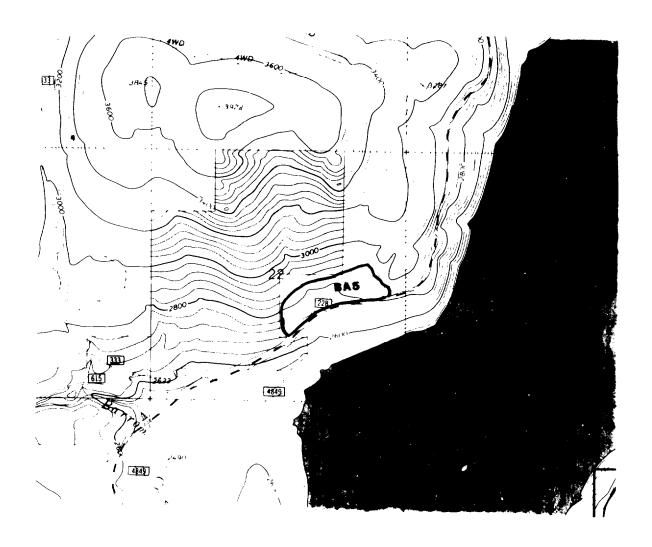


Task 3.22 A prescribed fire will be used on 95 acres in the Cripple Horse drainage, CH17, (Sections 3 and 4, T31N, R28W) to reduce thinning slash within an area with timber management requirements, and to stimulate growth of the understory vegetation.

<u>Schedule</u> Burn: 4/1 - 5/30, 1990-1991

Objective 4: Rehabilitate bighorn sheep and mule deer winter and spring ranges adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1992.

Year	Ranger District	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1992	Canoe Gul ch	4. 1	Barron Creek	BA	537	STH- A	USFS	*
	Canoe Gul ch	4. 2	Jackson Creek	JC8	22	STH- A	USFS	*
	cunoc uuren	1. ~	sacason or cea	103	14	STH- A	USFS	*
	Canoe Gul ch	4. 3	Fivemile Creek	F19	203	STH- A	USFS	*
				F20	348	STH- A	USFS	
	Canoe Gul ch	4. 4	Little Jackson Creek	LJ4	5	STH-B	USFS	*
				LJ5	5	STH-B	USFS	*
	Canoe Gul ch	4. 5	Fivemile Creek	F4	301	STH-C	USFS	*
	Canoe Gul ch	4.6	Fivemile Creek	F3	80	STH-C	USFS	*
	Rexford	4. 7	Big Creek	BC6	19	S/B	Trust	8, 392
	Rexford	4.8	M. FK. Parsnip Creek	MFP2	86	S/B	Trust	13, 657
	Rexford	4. 9	Parsnip Creek	PC9	89	S/B	Trust	14, 342
	Rexford	4. 10	Rondo	RON2	262	S/B	Trust	27, 067
	Li bby	4. 11	Horse Range'	LD3	165	UBA	Trust	6, 072
	Canoe Gul ch	4. 12	Fivemile Creek	F11	100	UBA	Trust	5, 569
	Canoe Gul ch	6. 13	Dunn Creek	DU1	89	UBA	Trust	19, 144
	Canoe Gul ch	4. 14	Fivemile Creek	F10	104	UBA	Trust	5, 649
Total		14		17	1, 929			99, 892



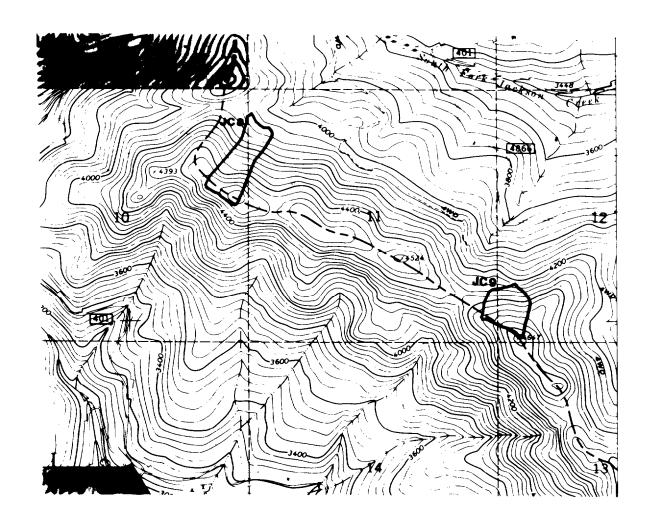
Task 4.1 The forest canopy will be opened on 37 acres at site BA5 in Barron Creek (Section 22, T32N, R29W) by selective harvest of mature forest. A limited forest canopy will be maintained to provide security andthermalcover. Some slashing of conifer regeneration may occur. After the slashed material has dried, a prescribed fire will be conducted to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1993

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



Task 4.2 The forest canopy will be opened on 22 and 14 acres by selective harvest of mature and second-growthponderosa pine and Douglas-fir in Jackson Creek (JC8, Sections 10 and 11, T31N, R30W and JC9, Section 12, T31N, R30W). Some slashing of the non-merchantable conifers may occur. Prescribed fires will be conducted the following year to reduce the logging slash and stimulate growth of the understory vegetation.

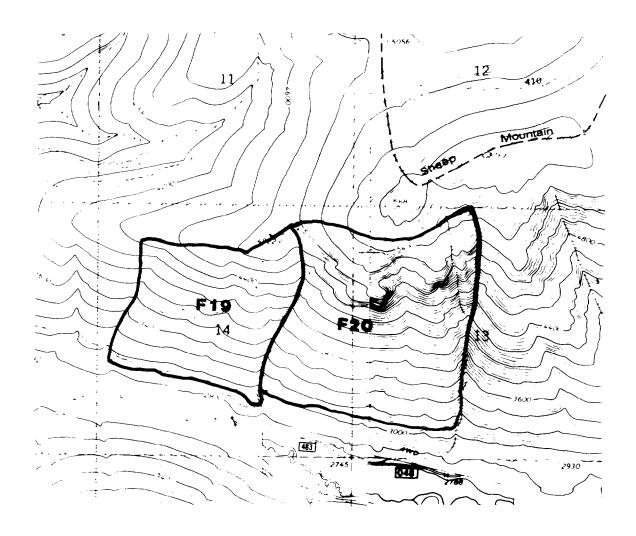
<u>Schedule</u> Log: 1992

Burn: 8/15 - 9/1, 1993

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



Task 4.3

551 acres of mature ponderosa pine and Douglas-fir, within the Fivemile Creek drainage, F19 and F20, (Sections 13 and 14, T32N, R28W) will be selectively harvested to provide for a more open conifer canopy. A stocking rate of mature trees which provides adequate snow interception will be maintained. A prescribed burn will be used to clean-up the logging slash and provide understory conditions conducive to stimulated plant growth.

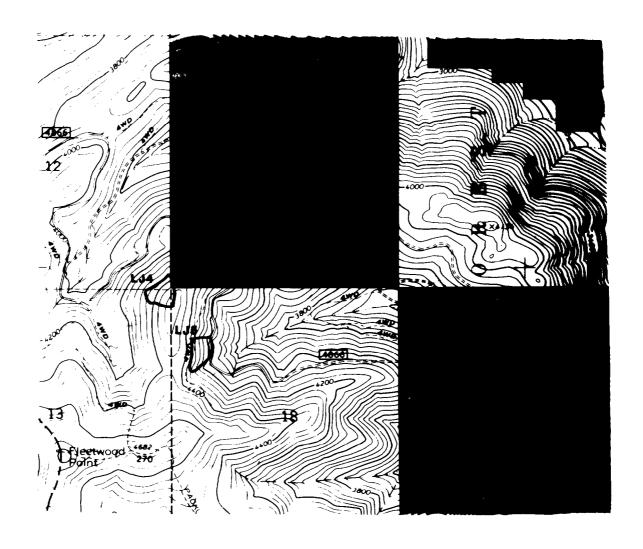
<u>Schedule</u> Log: 1992-1993

Burn: 4/1 - 5/30, 1993-1994

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: None, funded by sale proceeds.



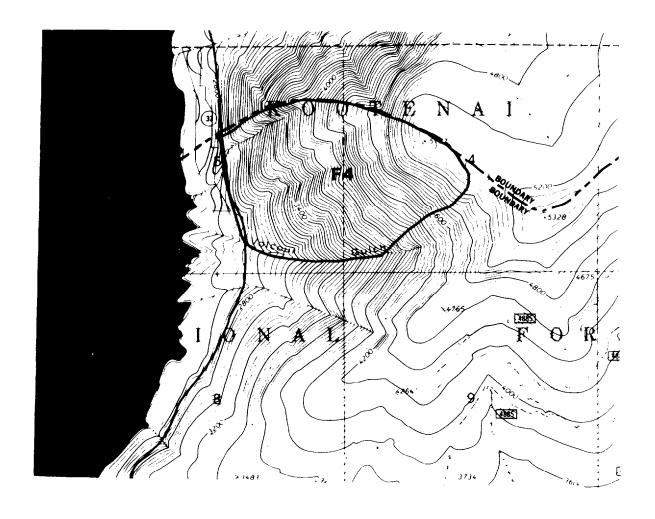
Task 4.4 Two small forage openings will be created by regeneration harvest on 10 acres at sites LJ4 (Sections 12 and 13, T31N, R30W) and LJ5 (Section 18, T31N, R29W) in Little Jackson Creek. A prescribed burn will be done the following spring on the 10 acres to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/30 or 9/1 - 10/15, 1993

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



Task 4.5 The forest canopy will be opened on 58 of 301 acres at site F4 in Fivemile Creek (Section 5, T32N, R28W) by selective harvest, primarily ponderosa pine. A prescribed fire will be conducted the following year on 301 acres to reduce logging slash and stimulate growth of the understory vegetation.

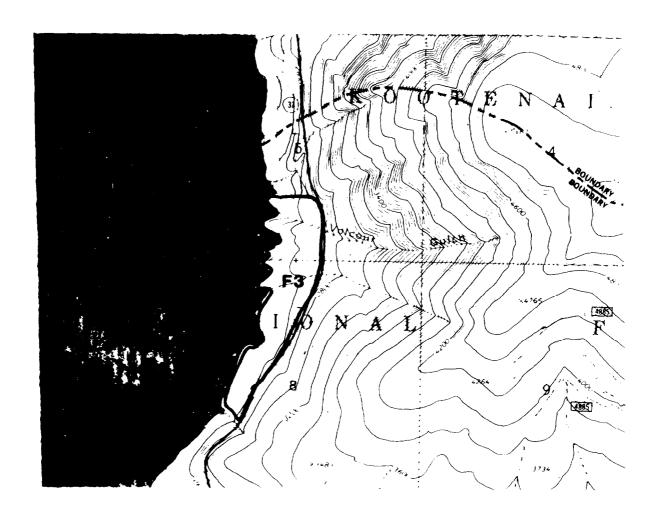
<u>Schedule</u> Log: 1992 - 1993

Burn: 9/1 - 10/15, 1993-1994

Funding: USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



Task 4.6 The forest canopy will be opened throughout 80 acres of winter range at site F3 in Fivemile Creek (Section 10, T32N, R28W) by selective timber harvest, primarily of ponderosa pine. A prescribed fire will be conducted the following year to reduce logging slash and stimulate growth of the understory vegetation.

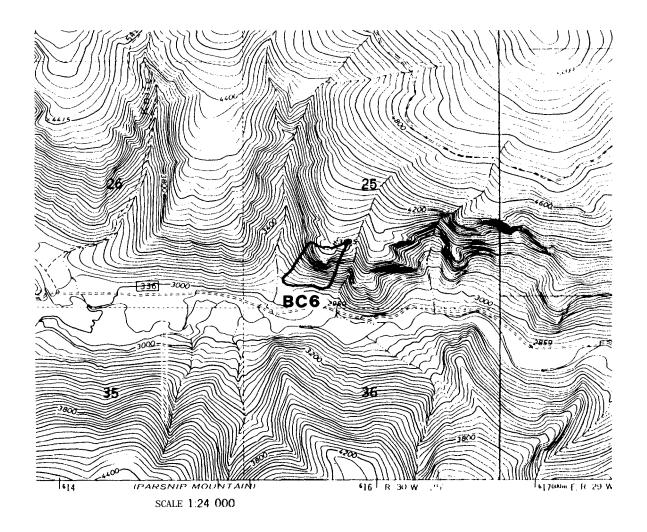
Schedule Log: 1992-1993

Burn: 4/1 - 5/15, 1993-1994

Funding USFS: Sale preparation, administration and slash

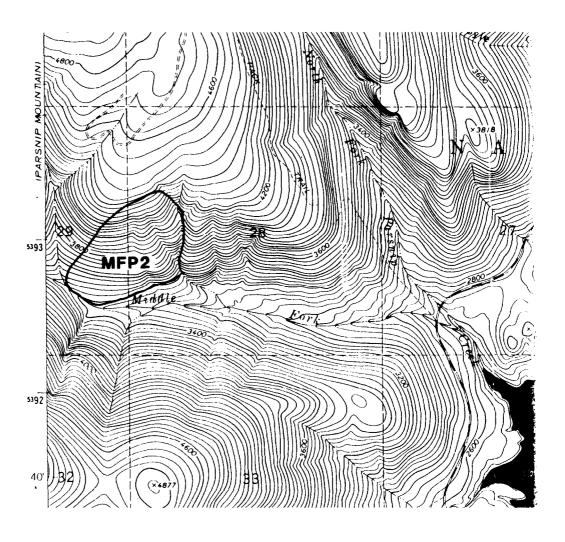
disposal.

Trust: Prescribed burn if not funded by sale



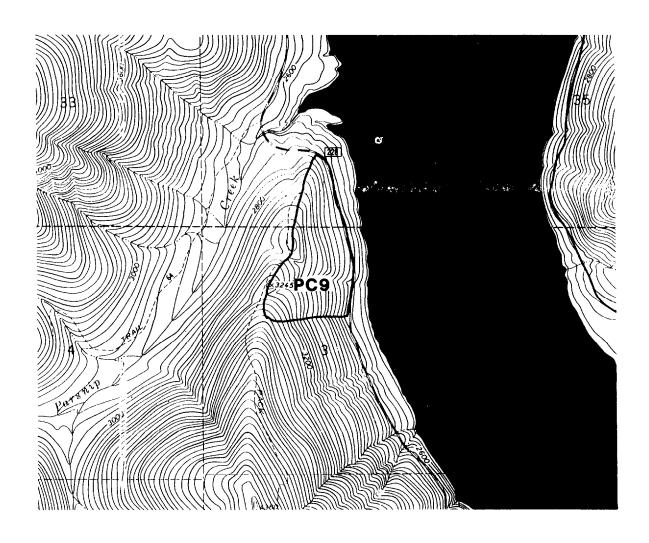
Task 4.7 Forage production will be improved on 19 acres in Big Creek (BC6,Section 25, T35N, R30W). Selective slashing of small trees followed by a prescribed fire will be used to reduce the slash, reduce the shading from small trees and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1993



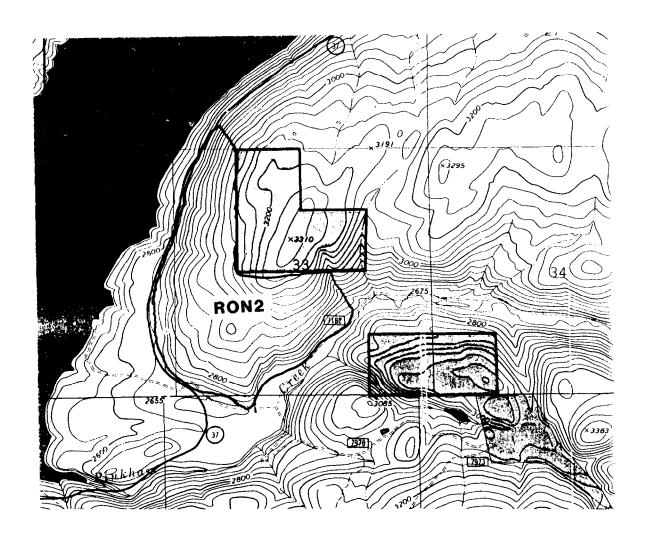
Task 4.8 Forage production will be improved on 86 acres in the Middle Fork Parsnip Creek drainage (MFP2, Sections 28 and 29, T34N, R29W). Selective slashing of small trees followed by a prescribed fire will be used to reduce the slash, reduce the shading from small trees, and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1993



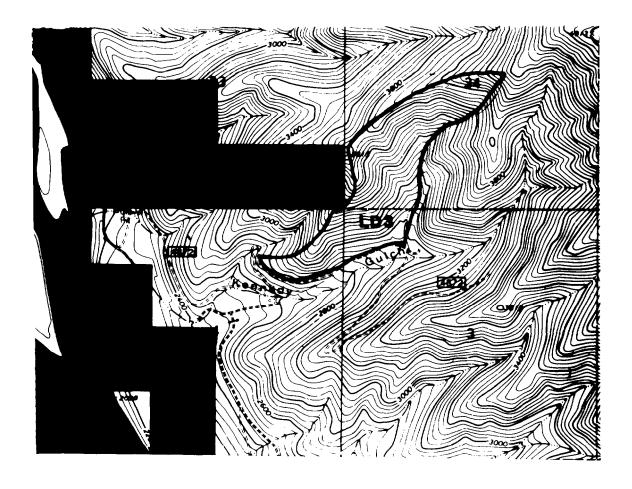
Task 4.9 Forage production will be stimulated on 89 acres in the Parsnip Creek drainage (PC9, Section 34, T34N, R29W and Section 3, T33N, R29W) by selective slashing of small trees followed by a prescribed fire to reduce the slash, reduce the shading from small trees, and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1993



Task 4.10 Forage production will be improved on 262 acres in the Rondo area (RON2, Section 33, T36N, R28W). Selective slashing of small trees followed by a prescribed fire will be used to reduce the slash, reduce the shading from small trees and stimulate growth of the understory vegetation.

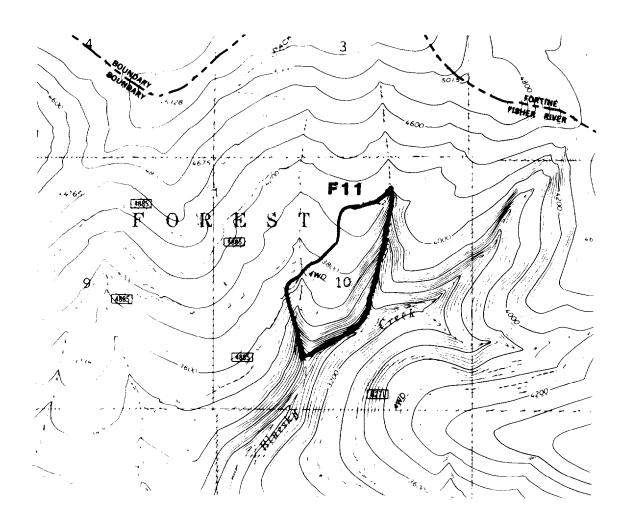
Burn: 4/1 - 5/15, 1993



Task 4.11 A prescribed fire will be used on 165 acres on the Libby Ranger District (LD3, Section 34, T31N, R30W and Sections 3 and 4, T30N, R30W) to thin the conifers and stimulate growth of the understory vegetation.

<u>Schedule</u> Burn: 3/15 - 4/15, 1992

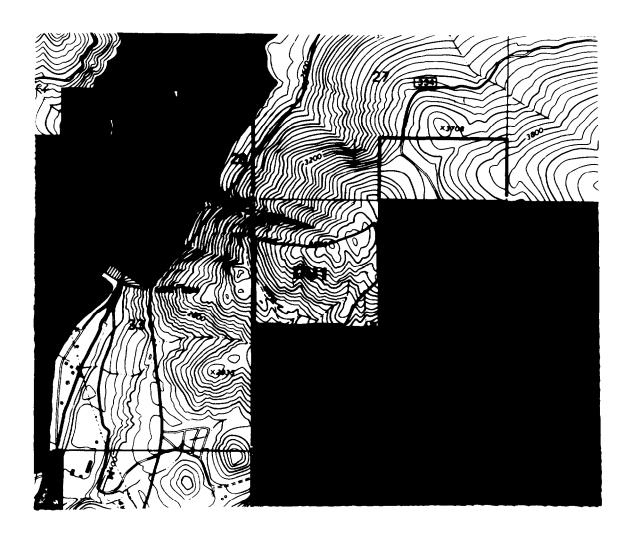
<u>Funding</u> Trust: Prescribed burn.



Task 4.12 A prescribed burn will be conducted on 100 acres at Site F11 in Fivemile Creek (Section 10, T32N, R28W) using a cool to moderate intensity fire to reduce down and dead material, thin the overstory, stimulate growth of the understoryvegetation and limit conifer encroachment.

<u>Schedule</u> Burn: **4/1 - 5/30**, 1992

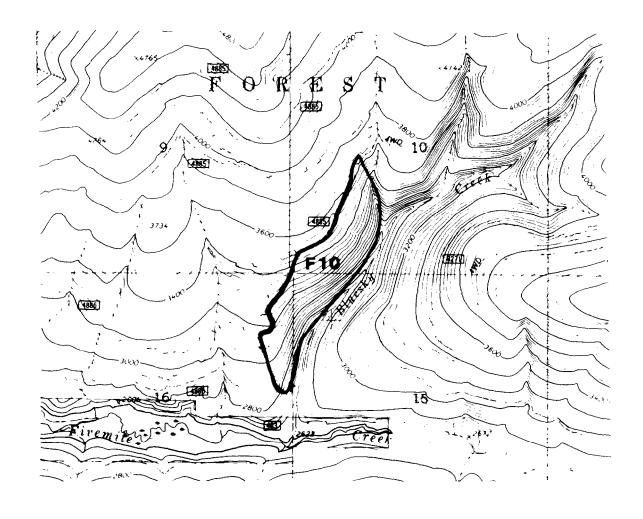
<u>Funding</u> Trust: Preseribed burn.



Task 4.13 A prescribed fire will be used on 89 acres in the Dunn Creek drainage (DU1, Section 34, T31N, R29W) to thin the conifers and stimulate growth of the understory vegetation.

<u>Schedule</u> Burn: **4/1 - 5/15,** 1992

<u>Funding</u> Trust: Prescribed burn.



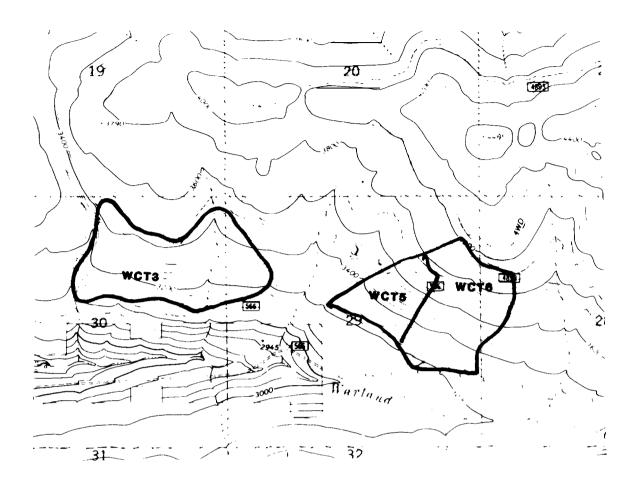
Task 4.14 A prescribed fire will be used on 104 acres in the Five Mile Creek drainage (F10, Sections 10, 15, 16; T32N; R28W) to thin the conifers and stimulate growth of the understory vegetation. This site will be burned in the same year as sites F11 and F33 to minimize control costs.

<u>Schedule</u> Burn: 9/1 - 10/15, 1992

Objective 5: Rehabilitate bighorn sheep and mule deer winter and spring ranges adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1993.

Year	Ranger District	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1993	Canoe Gul ch	5. 1	Warland Creek Timber	WCT3	136	STH- A	USFS	*
				WCT5	45	STH- A	USFS	*
				WCT6	125	STH- A	USFS	*
				WCT8	96	STH- A	USFS	*
				WCT9	86	STH- A	USFS	*
	Canoe Gul ch	5. 2	Cripple Horse Creek	CH19	180	S/B	Trust	32, 219
	Rexford	5. 3	Boul der Creek	BD1	303	S/B	Trust	29' 459
	Rexford	5. 4	C Branch	CB4	235	S/B	Trust	24, 907
	Rexford	5. 5	Stone Hill	STH2	291	S/B	Trust	29, 387
	Canoe Gul ch	5. 4	Canoe Gul ch	CG5	125	UBA	Trust	4, 974
	Canoe Gul ch	5. 7	Canoe Gul ch	CG14	75	UBA	Trust	4, 599
	Canoe Gul ch	5. 8	Canyon Creek	CC6	97	UBA	Trust	22, 499
			,	сс7	50	UBA	Trust	10, 599
Total		8		13	1, 844			158, 643

 $^{^{\}ast}$ Cost estimates only for slash and $\pmb{\text{burn}}$ and prescribed burn treatments.



Task 5.1 The forest canopy will be opened on 428 of 488 acres (areas of 136, 45, 125, 96, and 86 acres within sites WCT3, WCT5, WCT6, WCT8, and WCT9, respectively) in the Warland Creek drainage (Sections 19, 20, 27, 28, 29, and 30, T32N, R28W) by the selective harvest of mature and second-growth ponderosa pine and Douglas-fir. Some slashing of non-merchantable conifers may occur. Prescribed fires will be conducted the following year on all sites (total 488 acres) to reduce the logging slash and stimulate growth of the understory vegetation.

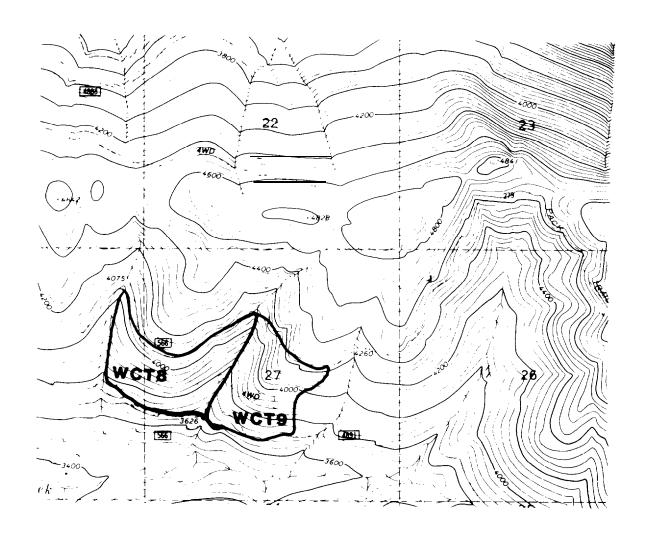
<u>Schedule</u> Log: 1993-1994

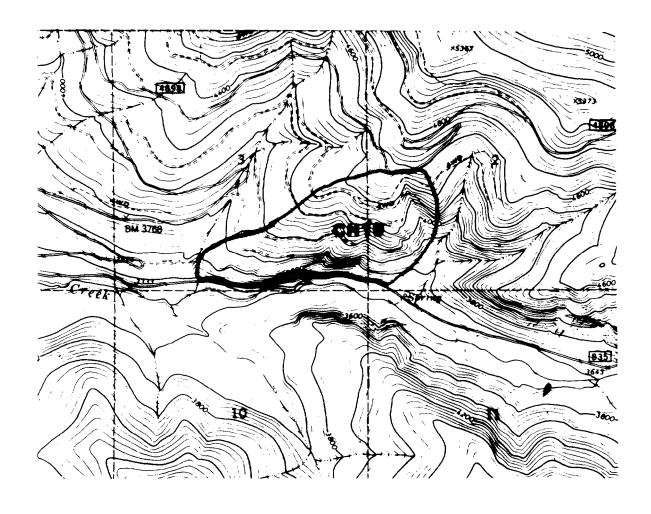
Burn: 4/15 - 5/30, 1994-1995

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale



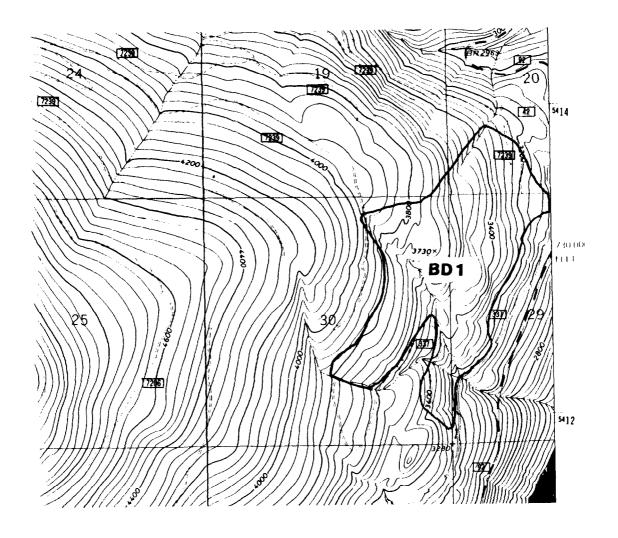


Slashing, followed by prescribed burning will be used to enhance 180 acres on site CH19 in the Cripple Horse Creek drainage (Sections 2 and 3, T31N, R28W). Purpose of the treatment is to reduce conifer encroachment and enhance the open conditions that historically provided good grass and browse forage.

Patches of timber will be retained on the site to provide security and thermal cover. A moderate intensity burn will be used to reduce slash and conifer encroachment and stimulate growth of the understory vegetation.

Burn: 4/15 - 5/30 or 9/1 - 10/15, 1994-1995

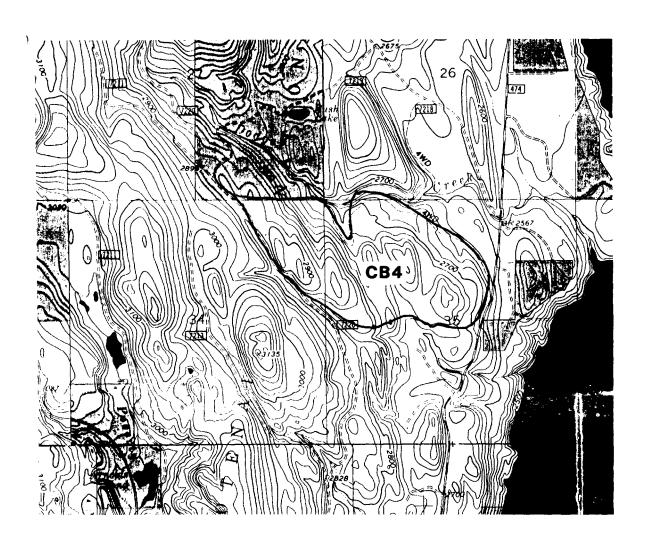
Funding, Trust: Slashing and burning.



Task 5.3 Forage production will be stimulated on 303 acres in the Boulder Creek drainage (BD1, Sections 20, 29 and 30, T36N, R28W) by selective slashing of small trees followed by a prescribed fire to reduce the slash, reduce the shading from small trees, and stimulate the growth of the understory vegetation.

Burn: 4/1 - 5/15, 1994

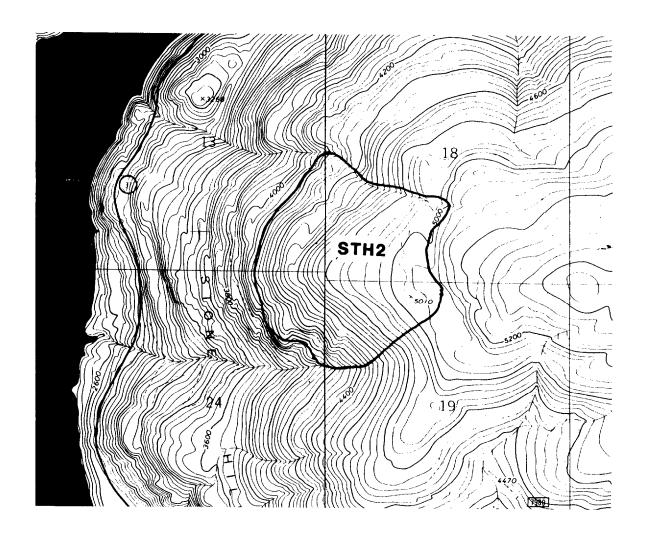
<u>Funding</u> Trust: Slashing and burning.



Task 5.4 Forage production will be stimulated on 235 acres in the C.Branch area (CB4, Sections 34 and 35, T37N, R28W) by selective slashing of small trees followed by a prescribed fire to reduce the slash, reduce the shading from small trees, and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1994

<u>Funding</u> Trust: Slashing and burning.

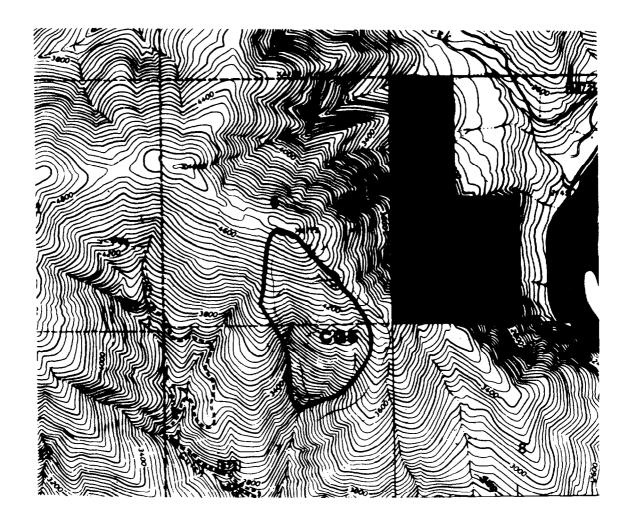


Task 5.5

291 acres on upper Stone Hill (STH 2) will be enhanced using a slash and burn treatment. Systematic strip and/or pattern slashing will be used to reduce the conifer encroachment, primarily lodgepole pine, on the numerous terraces within the unit. A prescribed fire will be used to reduce the slashed material, further reduce the conifer encroachment, and stimulate growth of the understory vegetation.

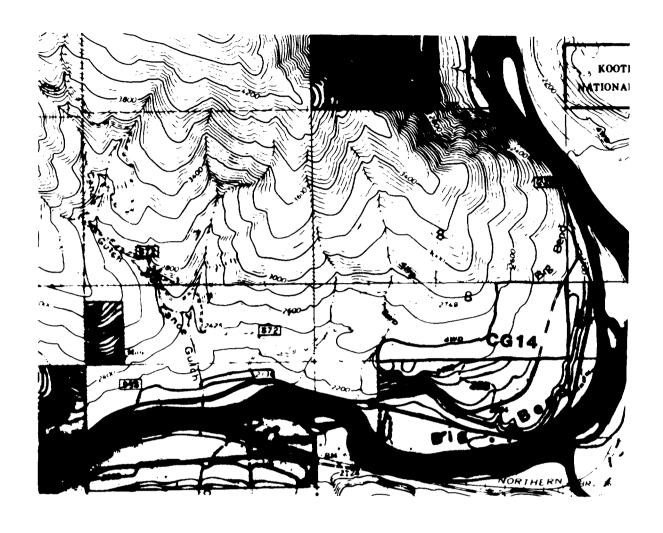
Burn: 4/15 - 5/30, 1995, or 8/15 - 10/1, 1995

Funding Trust: Slashing and prescribed burn.



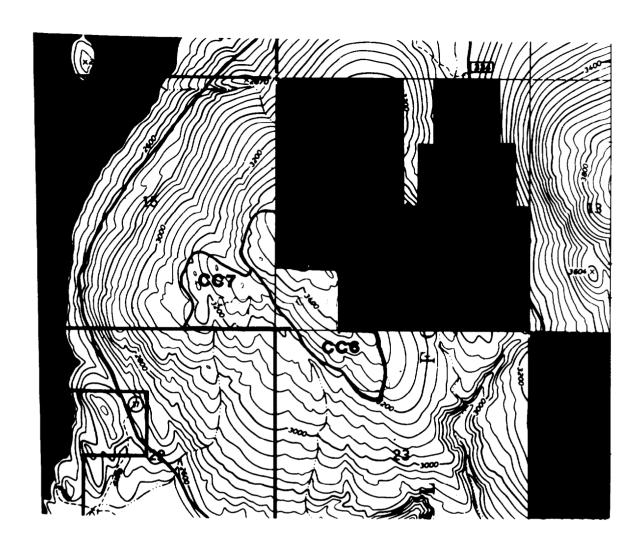
Task 5.6 The 125 acre Canoe Gulch Unit (CG5) will be treated with a prescribed underburn of low to moderate intensity. The burn will be conducted to reduce the conifer encroachment into the area and stimulate the growth of the understory vegetation, primarily the grasses and shrubs. Sufficient cover has to be left to provide good security and thermal cover for the deer and elk that winter in the area.

Funding Trust: Prescribed burn.



Task 5.7 A prescribed fire will be used on 75 acres in the Canoe Gulch area (CG14, Section 8, **T30N, R29W)** to thin the conifers and stimulate growth of the understory vegetation.

Funding Trust: Prescribed burn.



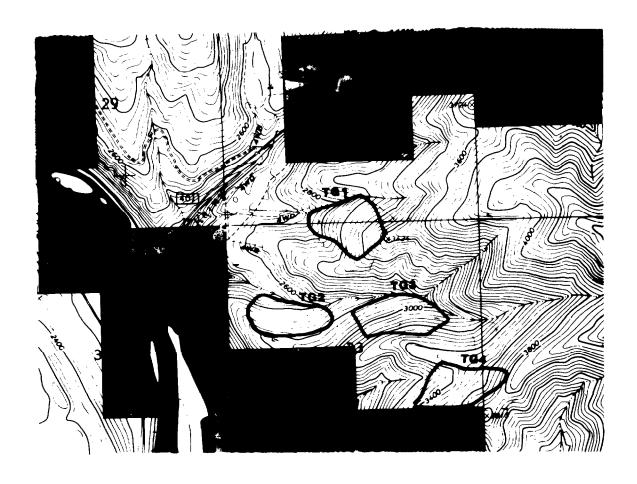
Task 5.8 A prescribed fire will be used on two sites totaling 147 acres in the Canyon Creek drainage (CC6 - 97 acres, Sections 14, 15 and 23, T31N, R29W; and CC7 - 50 acres, Section 15, T31N, R29W) to thin the conifers and stimulate growth of the understory vegetation.

<u>Funding</u> Trust: Prescribed burn.

Objective 6: Rehabilitate bighorn sheep and mule deer winter and spring ranges adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1994.

Year	Ranger District	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1004	****	0.1		T01	00	CITIVI A	нара	*
1994	Li bby	6. 1	Thomas Gulch	TG1 TG2	26 23	STH- A STH- A	USFS USFS	
				TG3	23 15	STH- A STH- A	USFS	*
				TG4	15 18	STH- A		*
	0 1 1	0.0	Barron Creek	BA2		STH- A	USFS USFS	*
	Canoe Gul ch	6. 2	barron creek	BA2 BA3	228 21	STH-A STH-A	USFS	*
	Canoe Gul ch	6. 3	Zeigler Mountain	ZV3	71	STH- A	USFS	*
	Li bby	6. 4	Rainy Creek	R3	47	S/B	Trust	12, 269
	Li bby Li bby	6. 5	Rainy Creek	R5	101	S/B	Trust	17, 844
	Canoe Gul ch	6. 6	Al exander Creek	AX5	57	S/B	Trust	9, 494
	Canoe Gul ch	6. 7	Cripple Horse Creek	CH14	70	S/B	Trust	6, 969
	Rexford	6. 8	Phills Lake	PL2	218	S/B	Trust	24, 637
	Rexford	6. 9	Phills Lake	PL8	100	S/B	Trust	14, 607
	Rexford	6. 10	Rocky Gul ch	ROG1	63	S/B	Trust	11, 147
	Rexford	6. 11	Tenmile Creek	TM1	72	S/B	Trust	11, 867
	Rexford	6. 12	Sutton/Peck Creek	SP1	169	S/B	Trust	20, 472
	Li bby	6. 13	Horse Range	LD14	370	UBA	Trust	8, 677
	Canoe Gul ch	6. 14	Canoe Gul ch	CG8	180	UBA	Trust	17, 099
	Canoe Gul ch	6. 15	Warland Creek	WC1	112	UBA	Trust	8, 044
	Rexford	6. 16	Green Basin	GB1	223	UBA	Trust	8, 044
Total		16		20	2, 184			163. 126

 $^{^{\}ast}$ Cost estimated only for slash and burn and prescribed burn treatments.



Task 6.1 Four units in the Thomas Gulch area (TG1, TG2, TG3 and TG4, Section 33, T31N, R30W) are scheduled for selective harvest of the mature ponderosa pine and Douglas-fir. Timber stands totalling 82 acres will be modified so that a more open canopy exists, This canopy will provide snow interception while also allowing sufficient solar radiation to the understory for stimulated plant growth. Following the timber harvest, the units will be underburned with fires of low to moderate intensity. Low mortality of the remaining overstory is desired.

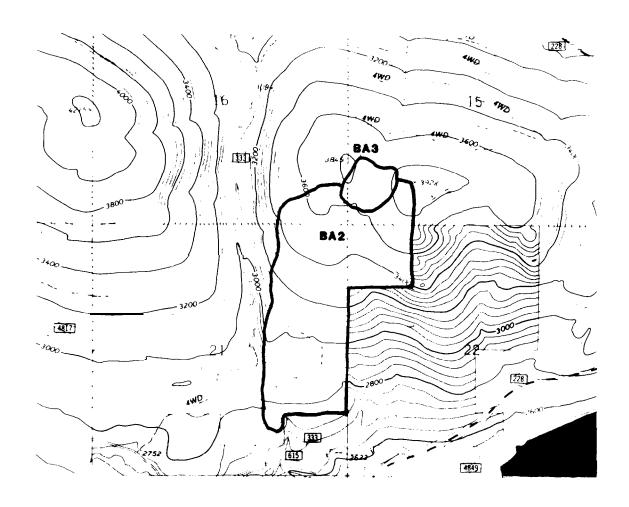
<u>Schedule</u> Log: 1994-1995

Burn: 4/1 - 5/15 or 9/1 - 10/30, 1995-1996

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: None, funded by sale proceeds.



Task 6.2 The forest canopy will be opened on 249 acres by selective harvest of mature and second-growth ponderosa pine and Douglas-fir in the Barron Creek drainage (BA2 - 228 acres, Sections 21 and 22, T32N, R29W; and BA3 - 21 acres, Section 15, T32N, R29W). Some slashing of non-merchantable trees may occur. A prescribed fire will be conducted the following year to reduce the logging slash and stimulate understory vegetation.

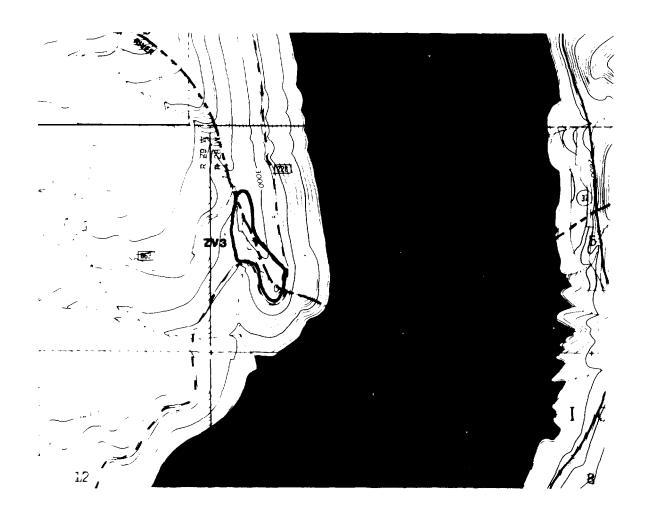
Burn: 4/1 - 5/15, 1995

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale

proceeds.



Task 6.3 The forest canopy will be opened on 20 of 71 acres at site ZV3 on Zeigler Mountain (Section 6, T32N, R28W) by selective harvest primarily of ponderosa pine. A prescribed fire will be conducted the following year on 71 acres to reduce logging slash and stimulate growth of the under-story vegetation.

Burn: 4/1 - 5/15, 1995-1996

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale

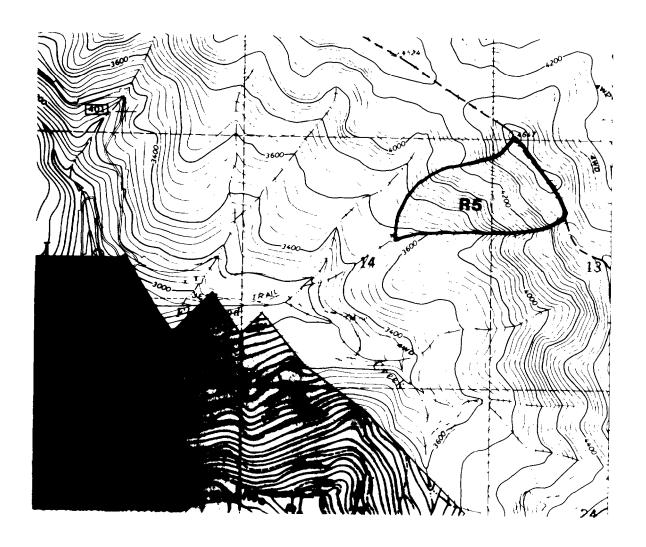
proceeds.



Task 6.4 47 acres in the Rainy Creek area (R3, Section 11, T31N, R30W) will undergo selective slashing of the conifer regeneration and young second growth. The slashing will provide additional fuels for the follow-up, moderate intensity prescribed fire, as well as a more open canopy. The prescribed fire will reduce the slashed material and stimulate growth of the understory vegetation.

Burn: 4/15 - 5/30, 1995-1996

Funding Trust: Slashing and burning.

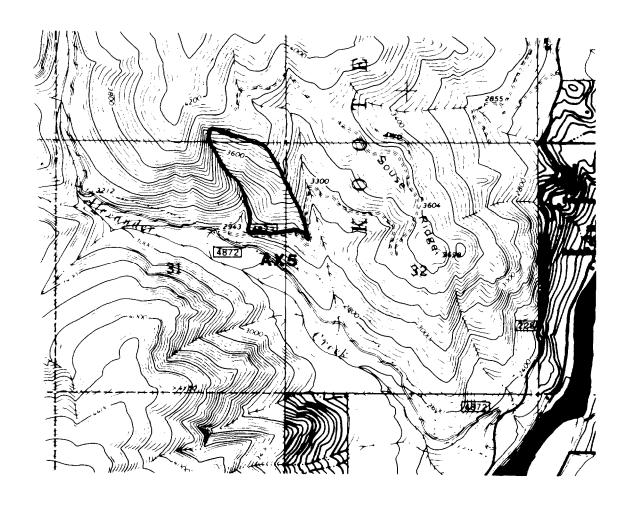


Task 6.5

101 acres in the Rainy Creek area (R5, Sections 13 and 14, T31N, R30W) will undergo selective slashing of the conifer regeneration and young second growth. The slashing will provide additional fuels for the follow-up, moderate intensity prescribed fire, as well as a more open canopy. The prescribed fire will reduce the slashed material and stimulate the growth of the understory vegetation.

Burn: 4/14 - 5/30 or 9/1 - 10/30, 1996

Funding BPA: Slashing and burning.

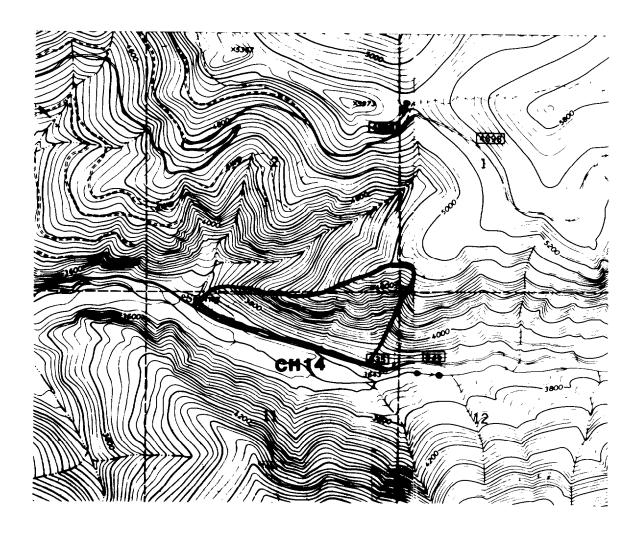


Task 6.6 Slashing, followed by burning will be used to enhance 57 acres on site AX5 in Alexander Creek (Sections 30, 31 and 32, T31N, R29W). Purpose of the treatment is to reduce conifer encroachment on the site and to increase forage production. Light slashing followed by a low intensity burn will best meet the desired objective.

<u>Schedule</u> Slash: 6/1 - 7/30, 1994

Burn: 4/1 - 5/15, 1995

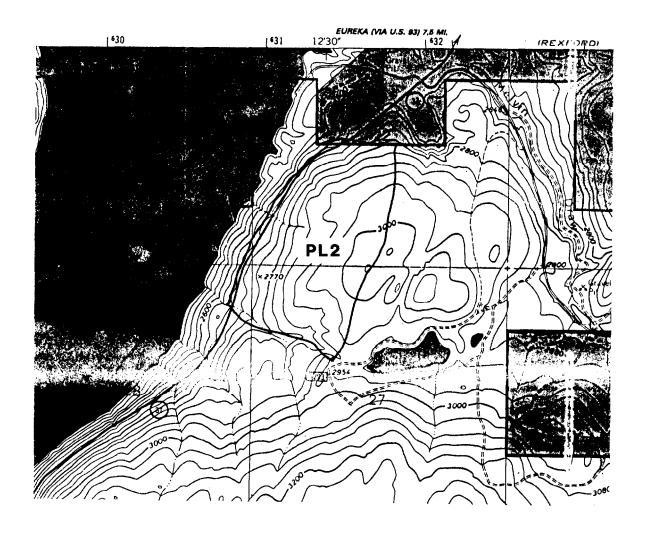
<u>Funding</u> Trust: Slashing and burning.



Task 6.7 A slash and burn treatment is scheduled for the 70 acre Cripple Horse Creek Unit #14 (CH14, Section 11, T31N, 28W). Systematic slashing of the conifer regeneration and small second growth will be completed to reduce the canopy coverage and understory competition. The slashing will also provide additional fuels that will help allow for a prescribed fire of moderate intensity across the entire unit. The fire will reduce the slashed material and stimulate growth of the remaining understory vegetation.

Burn: 4/1 - 5/15, 1995-1996

Funding Trust: Slashing and burning.



Task 6.8 Phills Lake Unit #2 (PL2, Sections 22 and 27, T36N, R28W), 218 acres, will be treated with a systematic slashing of the conifer regeneration and young second growth followedby a prescribed fire of moderate intensity. The treatment will result in a more open canopy which will provide for increased plant growth within the understory. The prescribed burn will further stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15 or 9/1 - 10/1, 1995

Funding Trust: Slashing and burning.



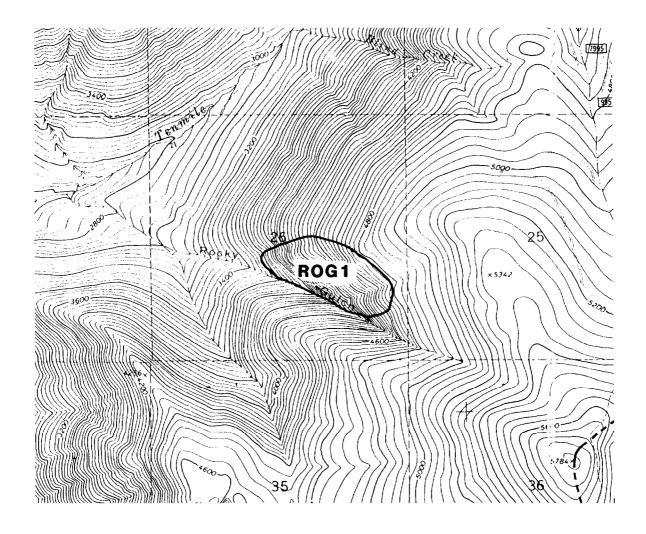
Task 6.9

100 acres in the Phills Lake area (PL8, Sections 21, 22 and 28, T36N, 28W) will be treated with a systematic slashing of the conifer regeneration and young second growth followed by a prescribed fire of moderate intnesity. The treatment will result in a more open canopy which will provide for increased plant growth within the understory. The prescribed burn will further stimulate growth of the understory vegetation.

Schedule Slash: 5/1 - 10/31, 1994

Burn: 4/1 - 5/15 or 9/1 - 10/1, 1995

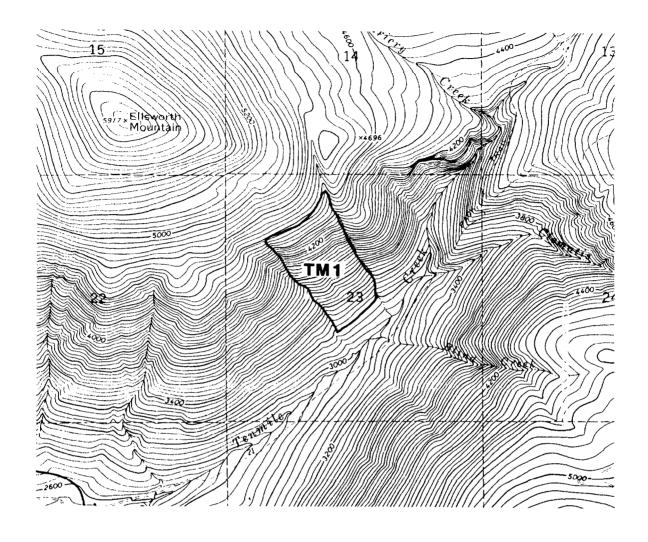
Funding Trust: Slashing and prescribed burning.



Task 6.10 Approximately 63 acres in the Rocky Gulch area (ROG1, Section 26, T33N, R28) will undergo selective slashing of the conifer regeneration and young second growth. The slashing will provide additional fuels for the follow-up, moderate intensity prescribed fire, as well as a more open canopy. The prescribed fire will reduce the slashed material and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1995

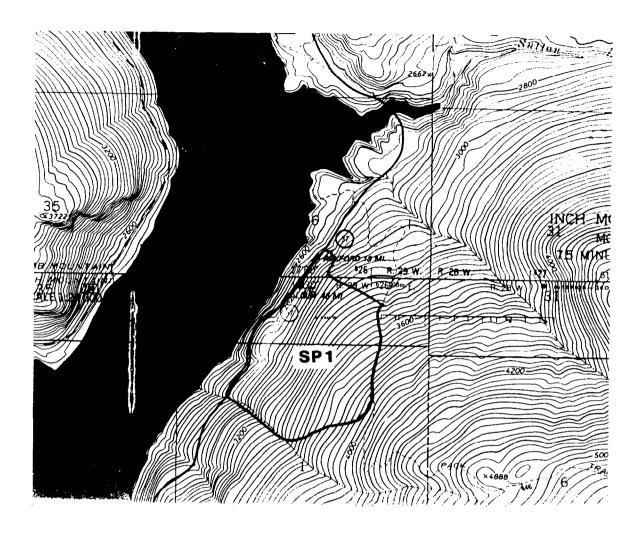
Funding Trust: Slashing and burning.



Task 6.11 Approximately 72 acres in the **Tenmile** Creek area (TM1, Section 23, T33N, R28W) will undergo selective slashing of the conifer regeneration and young second growth. The slashing will provide additional fuels for the follow-up, moderate intensity prescribed fire, as well as a more open canopy. The prescribed fire will reduce the slashed material and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1995

Funding Trust: Slashing and prescribed burning.

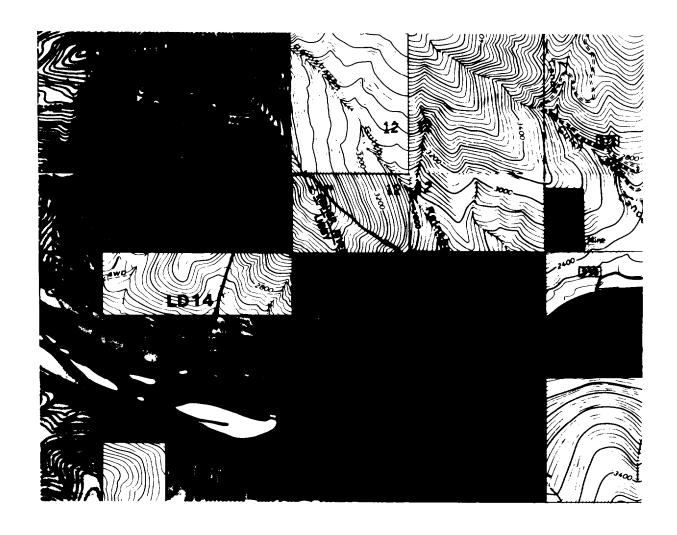


Task 6.12 Approximately 169 acres in the Sutton/Peck Creek area (SP1, Section 1, T34N, R29W and Section 36, T35N, R29W) will undergo selective slashing of the conifer regeneration and young second growth. The slashing will provide additional fuels for the follow-up, moderate intensity prescribed fire, as well as a more open canopy. The prescribed fire will reduce the slashed material and stimulate growth of the understory vegetation.

Schedule Slash: 5/1 - 10/31, 1994

Burn: 4/1 - 5/15 or 9/1 - 10/1, 1995

Funding Trust: Slashing and burning.



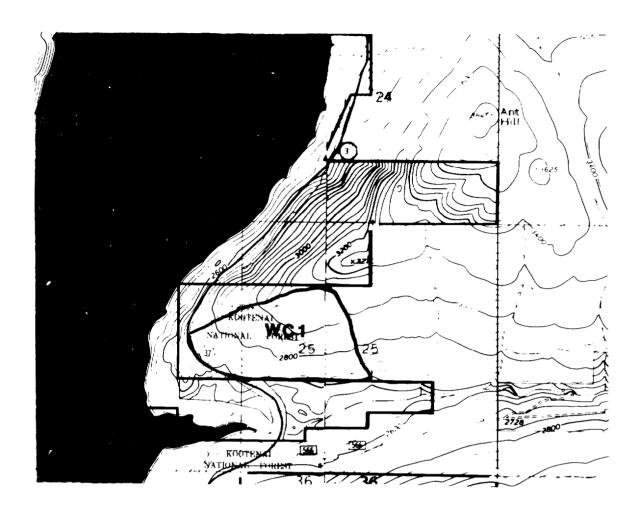
Task 6.13 A prescribed fire will be used on 370 acres on the Libby Ranger District (LD14, Sections 11, 12, 13, and 14, T30N, R30W) to stimulate understory vegetation. An agreement is needed to burn private land, if not obtained, burn boundaries and acreage will be modified.

Funding BPA: Prescribed burn.



Task 6.14 Prescribed underburning will be used to enhance 180 acres on site CG8 behind the Canoe Gulch Ranger Station (Sections 6 and 7, T30N, R29W). Purpose of the treatment is to stimulate growth of the understory vegetation while maintaining the existing coniferous canopy. A low intensity burn will be used.

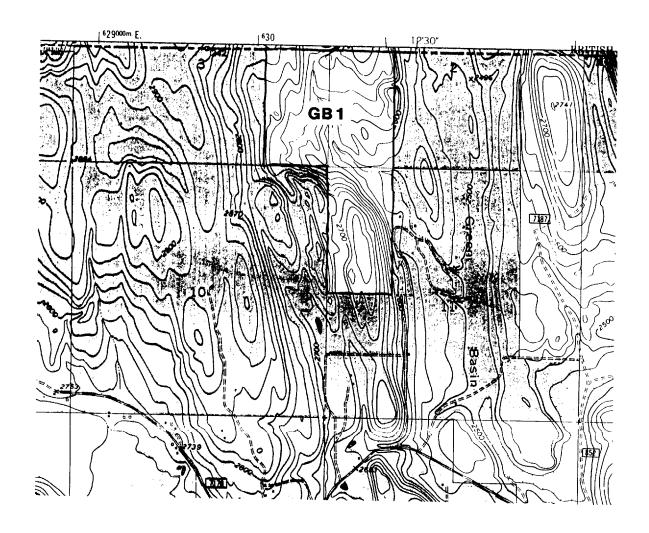
Funding Trust: Prescribed burning.



Task 6.15

An underburn of moderate intensity will be used to treat the 112 acre Warland Creek #1 unit (WC1, Sections 25 and 26, T32N, R29W). This burn will reduce the conifer overstory, reduce the conifer encroachment into the area, and stimulate growth of the understory vegetation. A light to moderate mortality within the conifer overstory is desired.

Funding Trust: Prescribed burning.



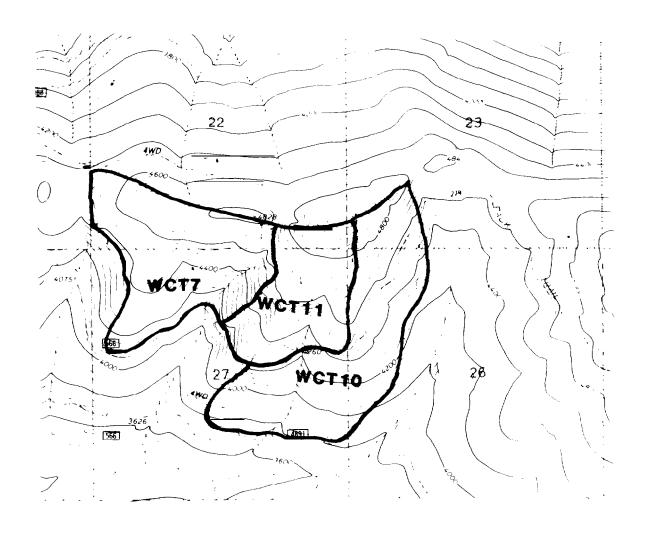
Task 6.16 A prescribed fire will be used on 223 acres in Green Basin (GB1, Sections 2, 3 and 11, T37N, R28W) to thin the conifers and stimulate understory vegetation. A low to moderate intensity spring burn is planned to promote maximum response from bitterbrush.

Funding Trust: Prescribed burn.

Objective 7: Rehabilitate bighorn sheep and mule deer winter and spring range on lands adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1995.

Year	Ranger District	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1007			the lend on a man		450	comm. A	LIGEO	*
1995	Canoe Gul ch	7. 1	Warland Creek Timber	UCT7	170	STH- A	USFS	*
				WCT10	190	STH- A	USFS	*
				WCT11 WCT12	111	STH- A	USFS	*
	Daystand	~ 0	V		282	STH- A	USFS	*
	Rexford	7. 2	Young Creek	Y4	115	STH- A	USFS	*
	Canoe Gul ch	7. 3	Jackson Creek	JC7 LJ2	73	STH- B	USFS	*
		~ .	Little Jackson Creek		76	STH-B	USFS	*
	Canoe Gul ch	7. 4	Canyon Creek	cc1 1	56	STH- B	USFS	*
	Canoe Gul ch	7. 5	Canyon Creek	cc8	12	STH- D	USFS	*
				сс9	13	STH-D	USFS	*
				cc10	15	STH-D	USFS	
	Rexford	7. 6	Big Creek	BC11	396	S/B	Trust	39, 767
	Rexford	7. 7	Parsni p Creek	PC2	103	S/B	Trust	14, 347
	Rexford	7. 8	Big/Parsnip Creeks	BP1	52	S/B	Trust	10, 527
	Canoe Gul ch	7. 9	Canoe Gul ch	CG1	160	UBA	Trust	5, 499
	Canoe Gul ch	7. 10	Ziegler Mountain	27	102	UBA	Trust	4, 935
Total		10		16	1, 926			75, 075

 $^{^{\}ast}$ Costs only estimated for slash and burn and prescribed burn treatments.



Task 7.1

150 of 752 acres in the Warland Creek drainage will undergo selective timber harvest. Units WCT7 (170 acres, Sections 22 and 27, T32N, R 28W), WCT10 (190 acres, Sections 23, 26 and 27, T32N, R28W), WCT11 (111 acres, Sections 22 and 27, T32N, R28W) and WCT12 (282 acres, Sections 20, 21, 22 and 28, T32N, R28W) will be treated to provide thinning of the overstory. Prescribed fire will be used as a follow-up treatment to stimulate growth of the understory vegetation while creating minimal mortality in the remaining overstory.

<u>Schedule</u> Log: 1995-1996

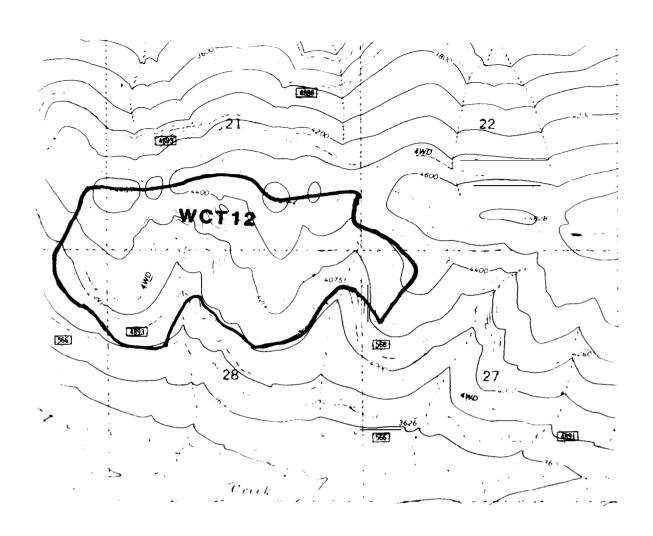
Burn: 4/1 - 5/15 or 9/1 - 10/15. 1996-1997

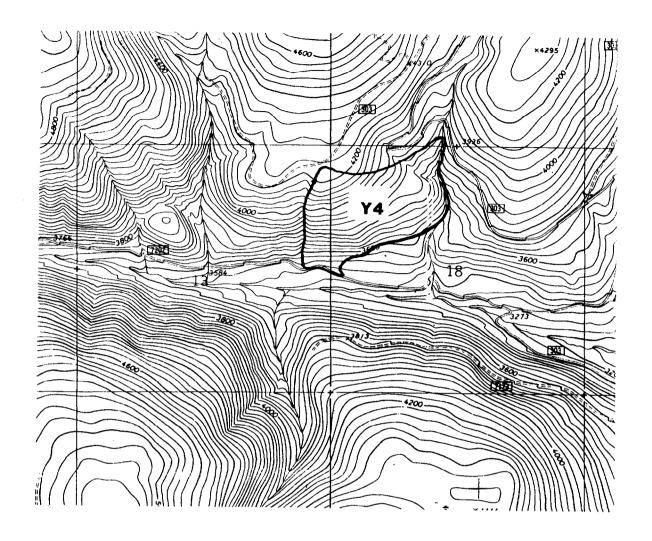
Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burning if not funded by sale

proceeds.





Task 7.2 A selective timber harvest unit (Y4, Section 18, T37N, R28W) of approximately 115 acres will be established within the Young Creek drainage. The timber harvest will be designed to remove a portion of the second growth and mature ponderosa pine and Douglas-fir, while retaining adequate thermal and security cover for mule deer, white-tailed deer and elk. A prescribed burn of cool to moderate intensity will be used as a follow-up procedure.

<u>Schedule</u> Log: 1/1 - 12/31, 1995

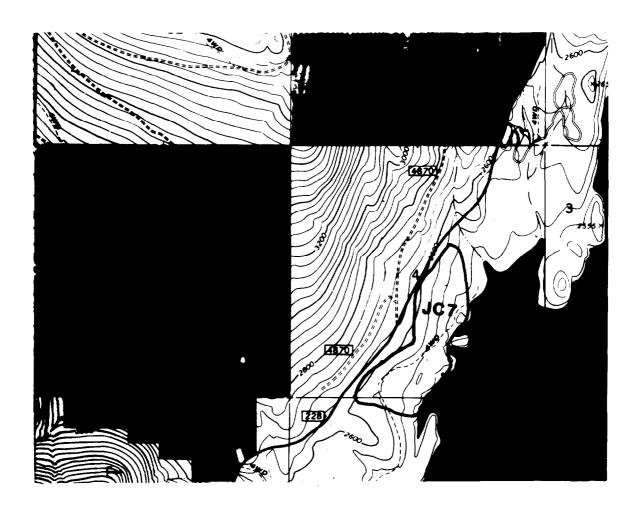
Burn: 4/1 - 5/15 or 9/1 - 10/1, 1996

Funding USFS: Timber sale preparation, administration and

slash disposal.

Trust: Prescribed burn if not covered by sale

receipts.



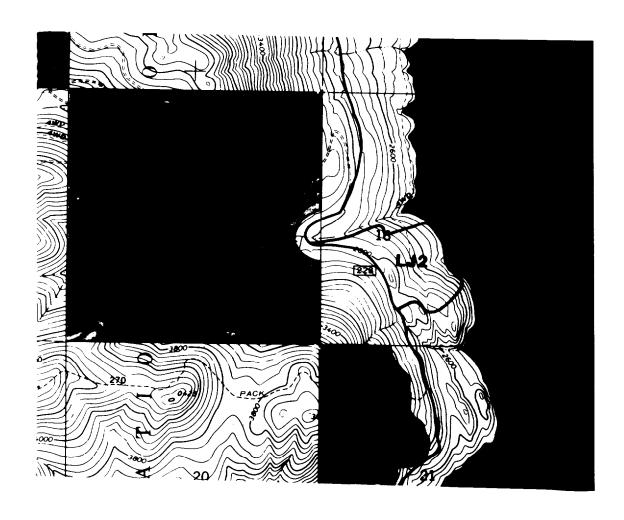
Task 7.3 Selective harvest of mature ponderosa pine will occur on sites JC7, (73 acres, Section 4, T31N, R29W) and LJ2, (76 acres, Section 16, T31N, R29W). Trees that have been infested by the mountain pine beetle or of high risk of being infested will be harvested. An overstory canopy of at least moderate closure is preferred. A prescribed fire of low to moderate intensity to reduce the logging slash and stimulate growth of the understory is preferred. Low mortality within the remaining overstory is desired.

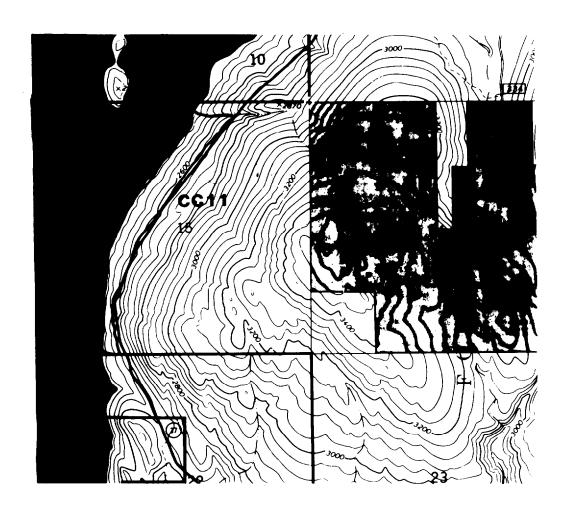
Burn: 4/1 - 5/15, 1996

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: None, funded by sale proceeds.





Task 7.4 A 56 acre unit within the Canyon Creek drainage (CCl1, Section 15, T32N, R29W) will be logged to remove selected ponderosa and lodgepole pine which have been infected by or are high risk of being infected by the mountain pine beetle. An open overstory canopy will be created which provides adequate security and thermal cover for wintering animals. A follow-up, light intensity burn will be used to reduce the logging slash and farther stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 1996

Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burn if not funded by sale

proceeds.

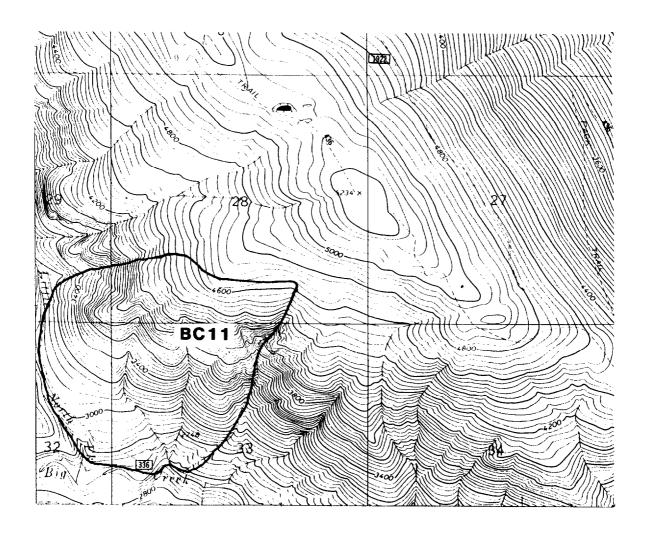


Task 7.5 Three forage openings (Sites CC 8, 9, and 10) of 12, 13, and 15 acres respectively, will be created through timber harvest in the Canyon Creek drainage (Section 15, T31N, R29W). These will be prescribe burned following logging to reduce logging slash and stimulate understory vegetation.

Burn: 4/15 - 5/30 or 9/1 - 10/15, 1996

Funding USFS: Sale preparation, administration, and slash

disposal.

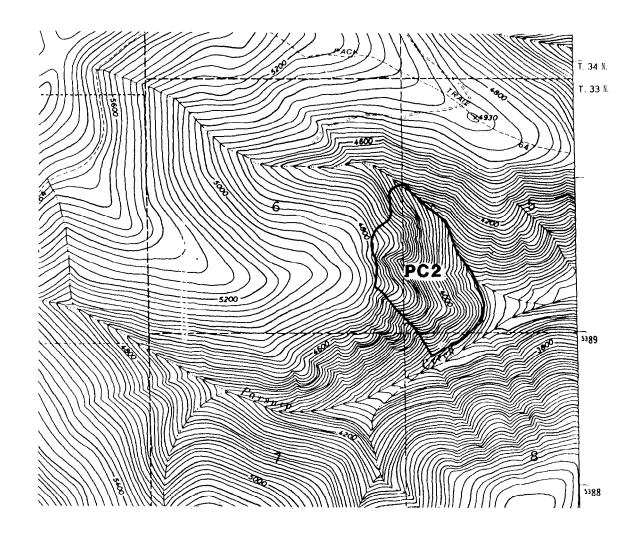


A 396 acre unit in the Big Creek drainage (BCll, Sections 28, Task 7.6 29, 32 and 33, T35N, R29W) will undergo a slashing treatment to reduce the conifer regeneration and canopy cover. After the slash has dried to the desired moisture content the unit will be treated with a prescribed burn. The prescribed fire will produce limited mortality in the overstory.

Slash: 5/1 - 10/31, 1995 <u>Schedule</u>

Burn: 9/1 - 10/1, 1996

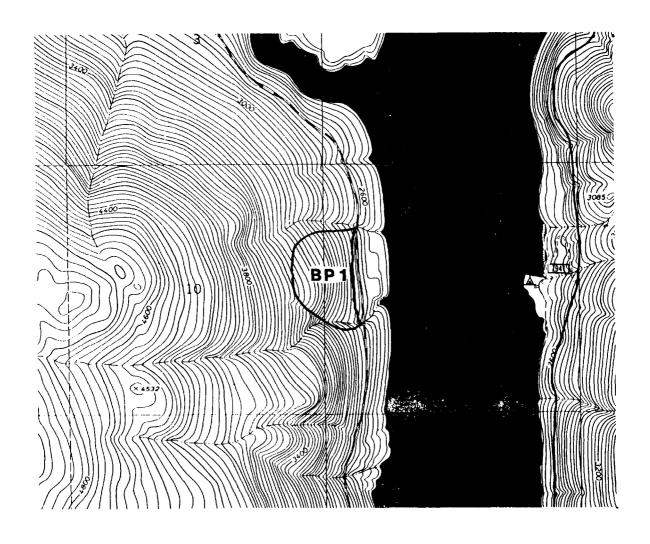
Slashing and burning. Funding Trust:



Task 7.7 Slashing of young conifers on 103 acres (PC2, Sections 5 and 6, T33N, R29W)) within the Parsnip Creek drainage will be completed. Prescribed fire of moderate intensity will be used to reduce the slash and provide for vegetative stimulation of the remaining understory. Mortality within, the overstory canopy will be low to moderate.

Burn: 8/15 - 9/15, 1996

<u>Funding</u> Trust: Slashing and burning.

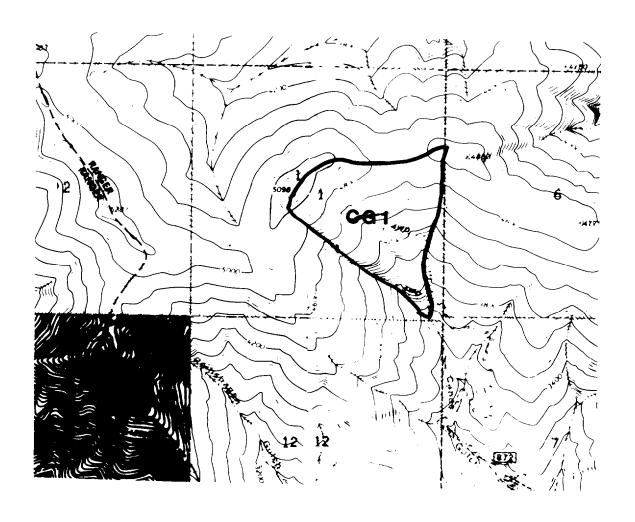


Task 7.8 Slashing of regeneration and selected young conifers will be conducted on 52 acres within the Big Creek - Parsnip Creek area (BP1, Sections 10 and 11, T34N, R29W). A follow-up prescribed fire of moderate intensity will be used to reduce the fuels and stimulate growth of the remaining understory vegetation.

Schedule Slash: 5/1 - 10/31, 1995

Burn: **8/15 - 9/15**, 1996

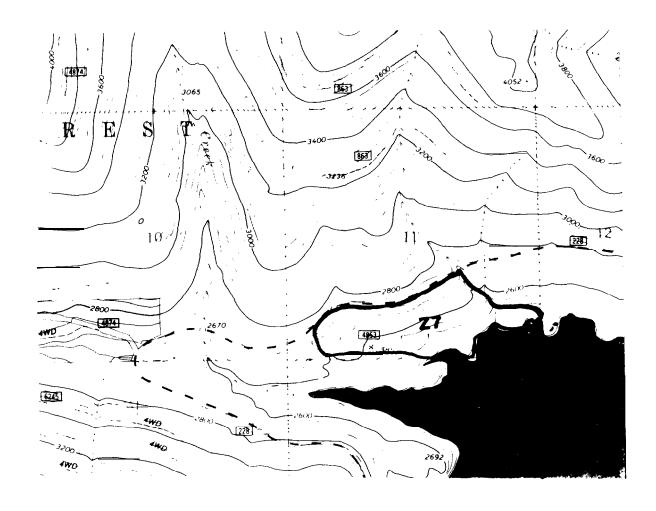
<u>Funding</u> Trust: Slashing and burning.



Task 7.9 An underburn of 160 acres (CG1, Section 1, T30N, R30W) will be completed on the Horse Range above the Canoe Gulch Ranger Station. This fire of low to moderate intensity will be used to retard the advancement of conifer regeneration onto the open grass/shrub slopes. Stimulation of the growth and resprouting of the understory vegetation is also desired. Improvement of the winter range for mule deer and elk is the desired result of this treatment.

<u>Schedule</u> Burn: 4/15 - 5/15 or 9/1 - 10/15, 1995

Funding Trust: Prescribed burning.



Task 7.10

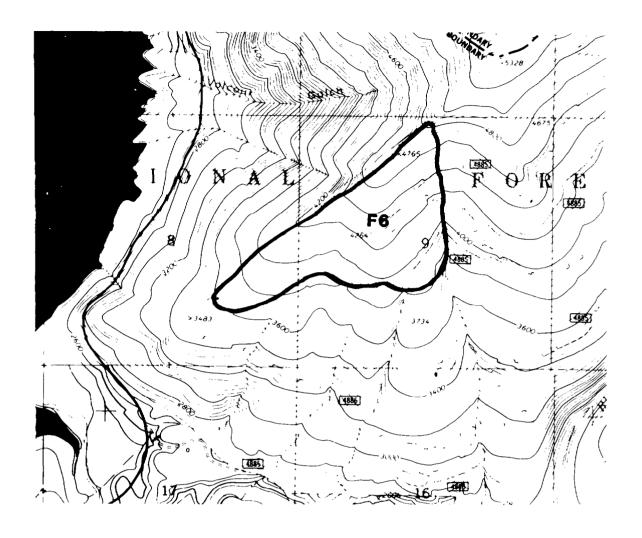
100 acres on Ziegler Mountain (Z7, Section 11, T32N, R29W) will be treated with an underburn of low to moderate intensity. This treatment will stimulate the growth of the understory vegetation while reducing the amount of conifer regeneration present within the unit. Because of the location of the unit directly below the FDR, minimalmortalitywithinthe overstory canopy is desired.

<u>Schedule</u> Burn: 4/15 - 5/30, 1995

<u>Funding</u> Trust: Prescribed burning.

Objective 8: Rehabilitate mule deer winter range on lands adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1996.

Year	Ranger District	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1996	Canoe Gul ch	8. 1	Fivemile Creek	F6	191	STH- A	USFS	*
	Canoe Gul ch	8. 2	Dunn Creek	DU4	272	STH- A	USFS	*
	Canoe Gul ch	8. 3	Fi vemile Creek	F2	120	STH-B	USFS	*
	Canoe Gul ch	a. 4	Barron Creek Bay	BB1	5	STH- D	USFS	*
				BB2	6	STH-D	USFS	*
				BB3	5	STH- D	USFS	*
	Canoe Gul ch	8. 5	Cripple Horse Creek	CH2	20	STH- D	USFS	*
				СНЗ	30	STH- D	USFS	*
				CH4	15	STH- D	USFS	*
				CH5	20	STH- D	USFS	*
	Rexford	8. 6	C Branch	CB1	132	S/B	Trust	16, 667
	Rexford	8. 7	Si mons Draw	SD1	196	S/B	Trust	10, 027
	Rexford	8. 8	Big/Parsnip Creeks	BP4	54	S/B	Trust	10, 427
	Rexford	8. 9	N. Fk. Parsnip Creek	NFP1	129	S/B	Trust	16, 427
	Rexford	8. 10	Sutton Creek	SNC1	67	S/B	Trust	11, 467
	Li bby	8. 11	Horse Range	LD11	220	UBA	Trust	6, 457
	Canoe Gul ch	8. 12	Jackson Creek	JC1	95	UBA	Trust	5, 949
	Canoe Gul ch	8. 13	Cripple Horse Creek	CH23	105	UBA	Trust	5, 724
Total		13		18	1, 682			83, 145



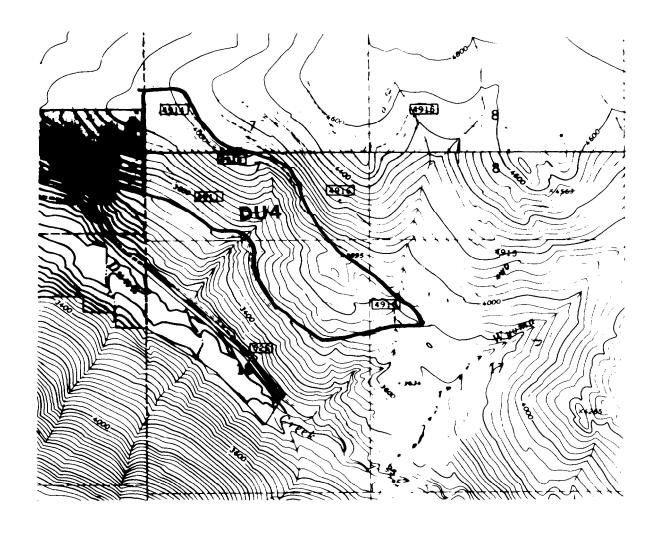
Task 8.1 Selective timber harvest, followed by prescribed burning will be used on 191 acres in the **Fivemile** Creek drainage (F6, Sections 8 and 9, T32N, R28W). Harvest will remove some of the mature ponderosa pine overstory and thin out the understory. The site will then be burned with a low intensity fire to stimulate growth of the understory vegetation.

<u>Schedule</u> Log: 1996

Burn: 4/15 - 5/30, 1997

Funding LJSFS: Sale preparation, administration and slash

disposal.

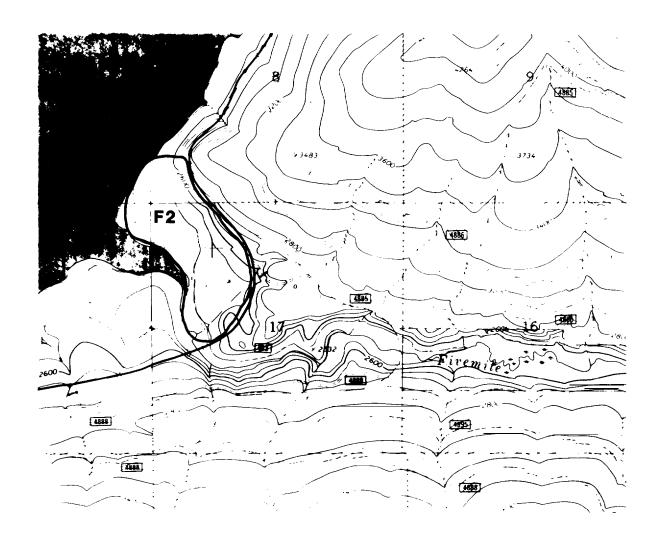


Task 8.2 Selective timber harvest, followed by prescribed burning will be used on 272 acres within the Dunn Creek drainage (DU4, Sections 7, 17 and 18, T30N, R28W). Harvest will remove some of the mature ponderosa pine overstory and thin out the understory. The site will then be burned with a low intensity fire to reduce logging slash and stimulate growth of the understory vegetation. Stand mortality will be kept low to maintain timber production.

Burn: 4/1 - 5/15, 1997

Funding USFS: Sale preparation, administration and slash

disposal.



Task 8.3 The Fivemile Creek #2 unit, 120 acres (F2, Sections 8 and 17, T32N, R28W) has been designated to have ponderosa and lodgepole pine that has been infected or is high risk of being infected by the mountain pine beetle selectively harvested. Following the timber harvest, a prescribed fire of low intensity will be used to reduce logging slash and stimulate growth of the understory vegetation.

Burn: 4/15 - 5/30, 1997

Funding USFS: Sale preparation, administration and slash

disposal.

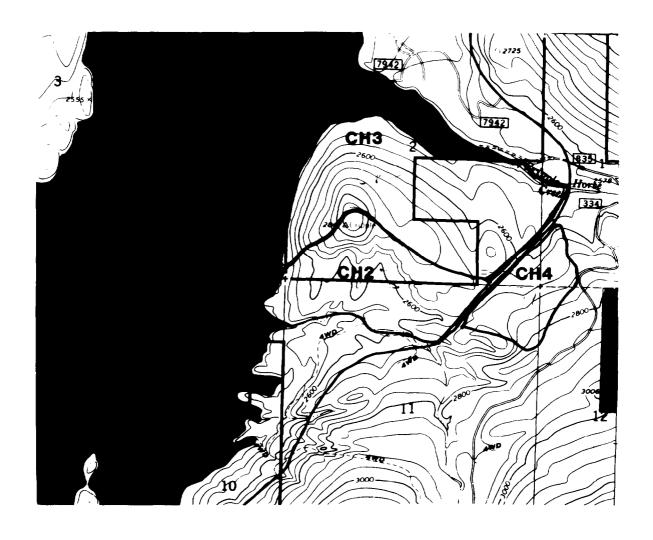


Task 8.4 Three units, 16 acres, at the mouth of Barron Creek (BB1, BB2, and BB3, Section 27, T32N, R29W) will undergo a systematic harvest of selected mature ponderosa pine. These small units will create foraging sites within the larger stand of ponderosa pine present at the site. The openings should provide for increased growth of the understory vegetation. The low intensity prescribed fires to reduce the logging slash, will also stimulate growth of the understory vegetation.

Burn: 4/15 - 5/30 or 9/1 - 10/15, 1997

Funding USFS: Sale preparation, administration and slash

disposal.

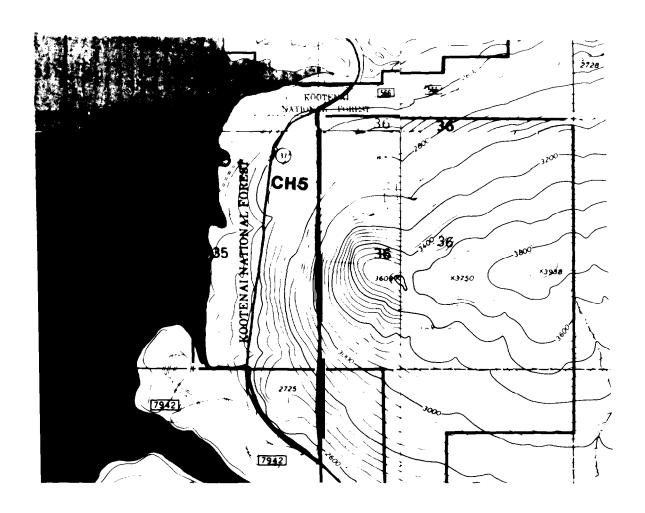


Task 8.5 Four units (CH2, CH3 and CH4 Sections 1, 2, 11, and 12, T31N, R29W and CH5, Section 35, T32N, R29W) within the Cripple Horse drainage have been scheduled for selective harvest of portions of the ponderosa pine stands. A total of 85 acres (20, 30, 15 and 20 acres respectively) will undergo harvesting of the mature ponderosa pine to create foraging areas within the larger ponderosa pine stand. A prescribed fire of moderate intensity will be used to reduce the logging slash and stimulate growth of the understory vegetation.

Burn: 4/15 - 5/30 or 9/1 - 10/15, 1997

Funding USFS: Sale preparation, administration and slash

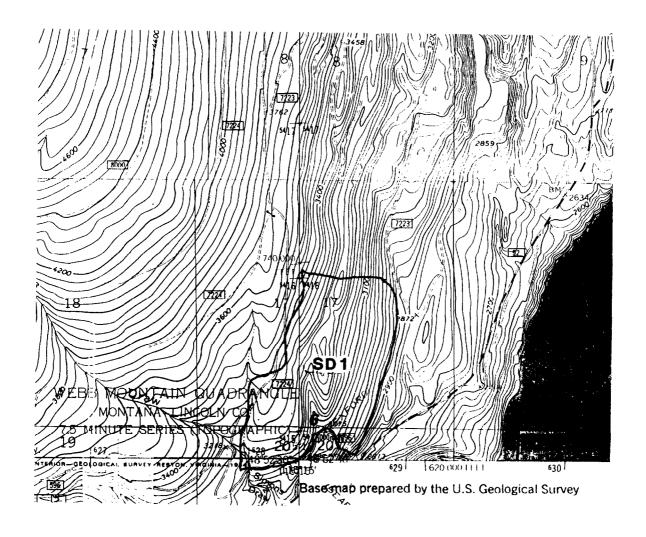
disposal.





Task 8.6 Approximately 132 acres in the C Branch area (CB1, Sections 27, 28, and 34, T37N, R28W) will undergo a systematic slashing of selected size classes of conifers. This will provide a reduction in the overstory and retard the invasion of conifers into the site. A prescribed burn of low to moderate intensity will be used to reduce the slash material and stimulate growth of the understory vegetation.

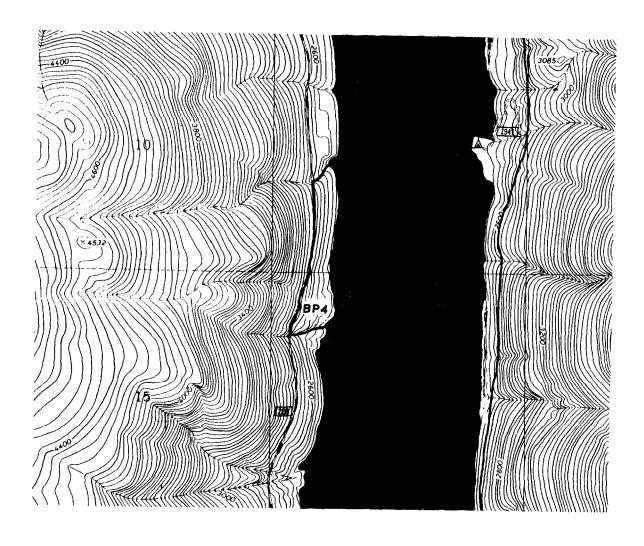
Burn: 4/1 - 5/15, 1997



Task 8.7

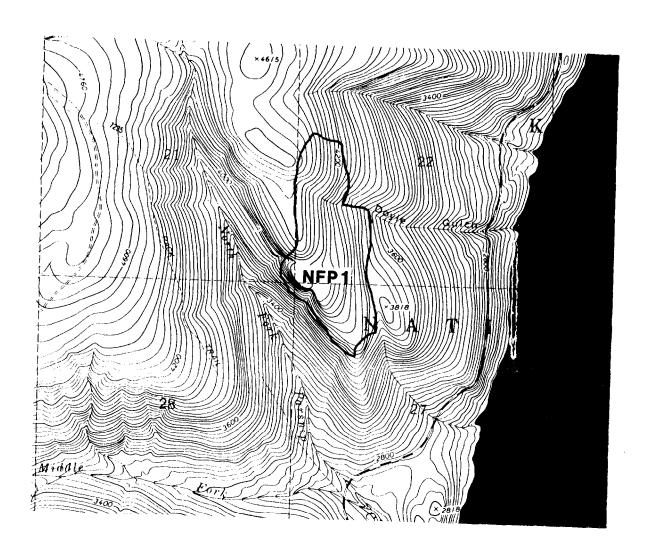
196 acres of ponderosa pine and Douglas-fir in Simons Draw (SD1, Section 17, T36N, R28W) will be systematically slashed to reduce the conifer regeneration and immature second growth. This treatment will result in less competition within the understory and a more open canopy. The follow-up prescribed burn will reduce the slashed material and provide growth stimulation for the remaining understory vegetation.

Burn: 4/1 - 5/15, 1997



Task 8.8 In a 54 acre unit between Big and Parsnip creeks (BP4, Sections 11 and 14, T34N, R 29W), conifer regeneration and trees having less than a given DBH will be slashed to reduce the competition within the understory. Prescribed fire will be used to reduce the slash and stimulate growth of the remaining understory vegetation. This treatment should improve the winter range segment for both mule deer and elk.

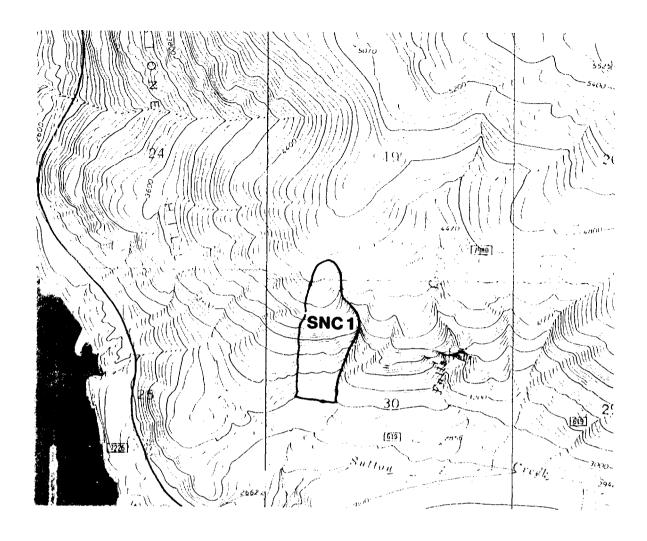
Burn: 4/1 - 5/15, 1997



Task 8.9 Within the North Fork of Parsnip Creek a 129 acre unit (NFP1, Sections 22 and 27, T34N, R29W) has been delineated for treatment. Slashing and burning will be used to reduce the conifer component in the understory and produce additional opening within the canopy. A low to moderate intensity fire will be used to reduce the logging slash, produce to desired conifer mortality and stimulate the understory vegetation.

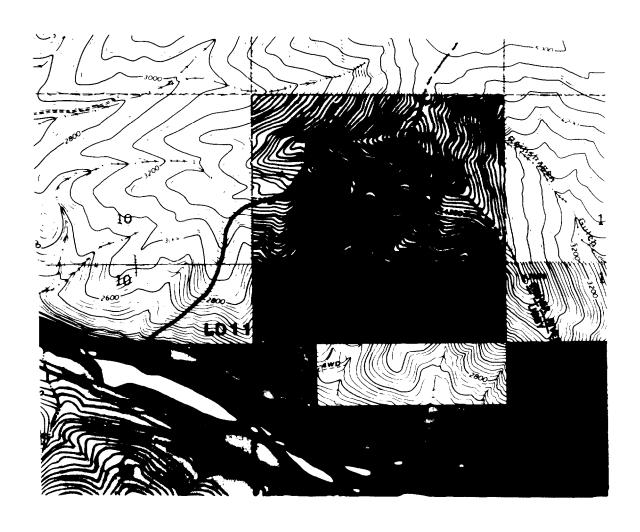
Schedule Slash: 5/1 - 10/31, 1996

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1997



Task 8.10 A 67 acre unit within the Sutton Creek drainage (SNC1, Section 30, T35N, R28W) will undergo a selective slashing of the conifer understory and regeneration. The follow-up prescribed fire will be of moderate intensity and will reduce the slashed material and stimulate the remaining understory vegetation. Low to moderate mortality within the remaining trees is desired.

Burn: 4/1 - 5/15 or 8/15 - 9/15, 1997

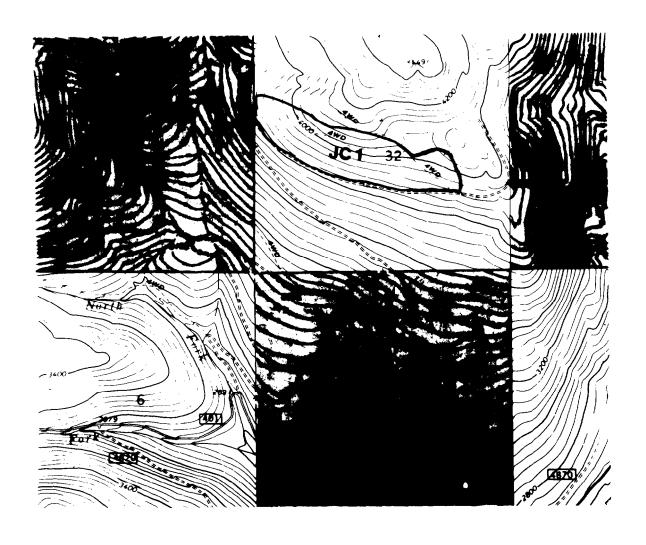


Task 8.11

A 220 acre unit within the Horse Range (LD11, Sections 10, 11 and 15, T30N, R30W) will be treated with an underburn of low to moderate intensity. The slope is an open grass and shrub field with open stands of ponderosa pine and Douglas-fir. Fire will be used to reduce dead material within the decadent shrubs, as well as some of the conifer regeneration. A fire of lower intensity will be used to minimize the mortality within the bitterbrush stands. Growth stimulation of the understory vegetation should occur.

<u>Schedule</u> Burn: 3/15 - 4/15, 1996

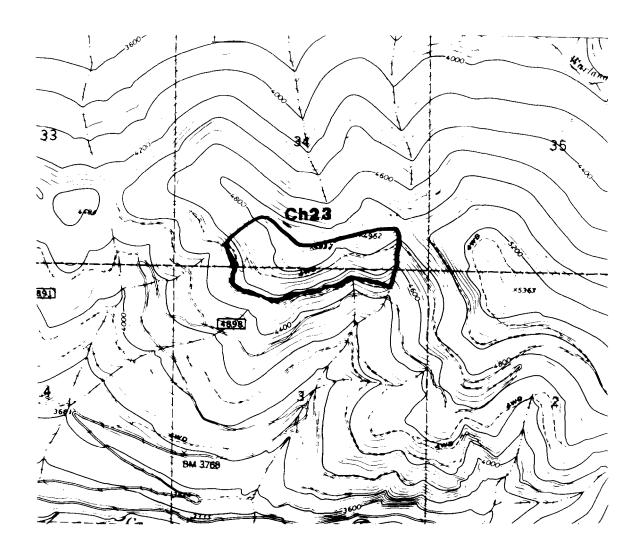
Funding Trust: Prescribed burning.



Task 8.12 Jackson Creek Unit #1 (95 acres, Section 32, T32N, R29W) will be underburned using a fire of low to moderate intensity. Some mortality within the conifer overstory is desired. The underburn will also reduce the conifer regeneration within the stand.

<u>Schedule</u> Burn: 4/1 - 5/15, 1996

<u>Funding</u> Trust: Prescribed burning.



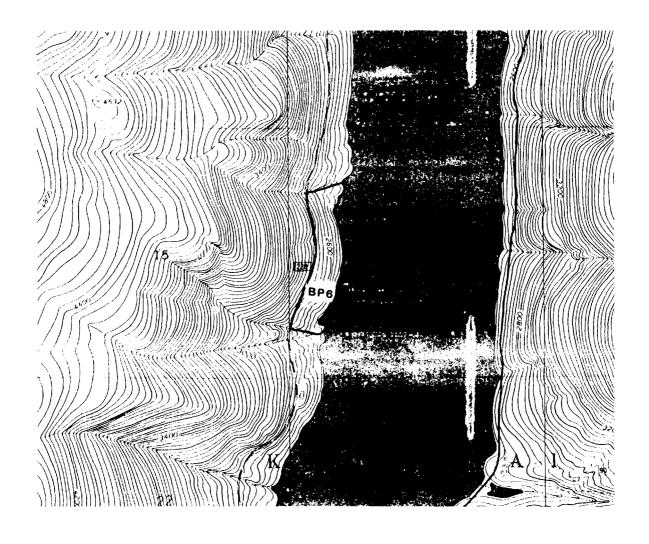
Task 8.13 Within the Cripple Horse drainage, a 105 acre unit (CH23, Section 34, T32N, R28W) will be treated with an underburn of moderate intensity. This unit lies on an upper, ponderosa pine and Douglas-fir slope. The underburn should reduce the conifer regeneration and create a 10-30 percent mortality in the overstory. In addition to modifying the conifer component, the burn should also stimulate growth of the understory vegetation.

<u>Schedule</u> Burn: 4/15 - 5/30, 1996

<u>Funding</u> Trust: Prescribed burning.

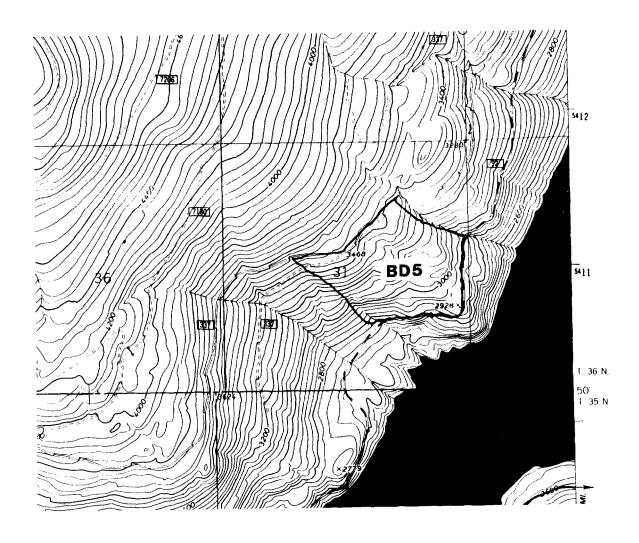
Objective 9: Rehabilitate mule deer winter range on lands adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1997.

Year	Ranger Di stri ct	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1997	Rexford	9. 1	Bi g/Parsni p Creeks	BP6	67	S/B	Trust	11, 467
	Rexford	9. 2	Boul der Creek	BD5	119	S/B	Trust	15, 627
	Rexford	9. 3	Parsni p Creek	PC5	67	S/B	Trust	11, 467
	Rexford	9. 4	Big Creek	BC8	40	S/B	Trust	9, 307
	Rexford	9. 5	Green Basin	GB5	252	S/B	Trust	27, 527
	Rexford	9. 6	McGuire Creek	MC2	43	S/B	Trust	9, 762
	Canoe Gul ch	9. 7	Cripple Horse	CH7	60	UBA	Trust	13, 599
			••	CH13	145	UBA	Trust	6, 724
Total		7		8	793			105, 480



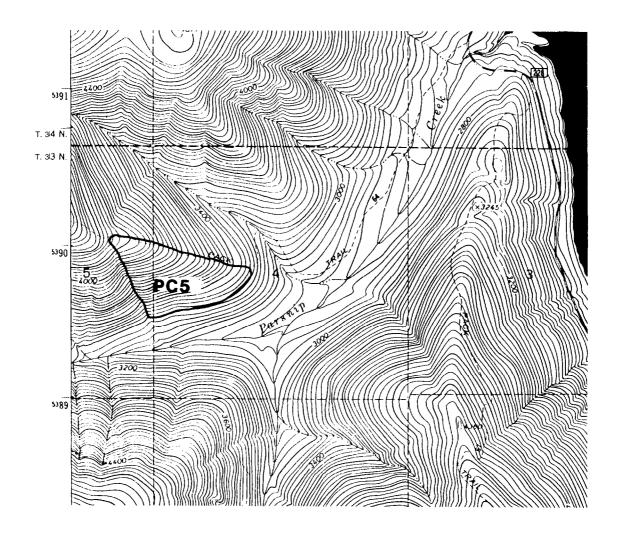
Task 9.1. Selective slashing of the conifer regeneration within a 67 acre unit in the Big Creek - Parsnip Creek area (BP6, Sections 14 and 15, T34N, R29W) will be used to reduce vegetative competition in the understory. This treatment will also open the overstory canopy. The follow-up prescribed burn will be of low to moderate intensity to provide for slash disposal and farther stimulation of the understory vegetation.

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1998



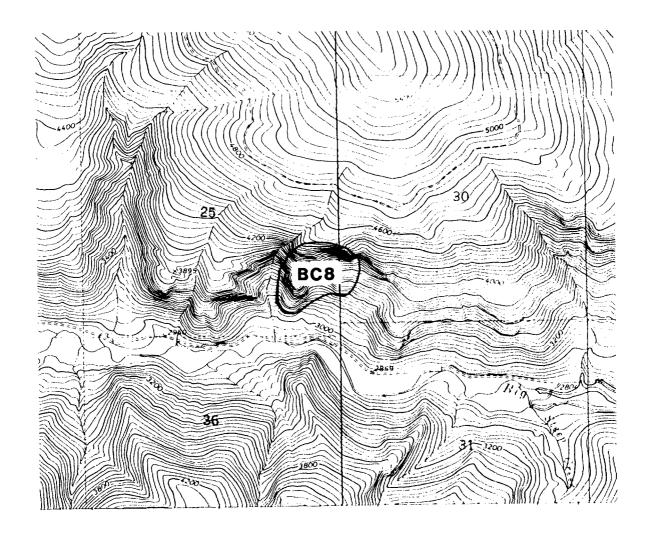
Task 9.2 A 119 acre unit in the Boulder Creek drainage (BD5, Section 31, T36N, R28W) has been designated to undergo selective slashing followed by a prescribed fire of low to moderate intensity. This combination of treatments will provide additional opening of the canopy, reduction in the conifer encroachment into the area, and growth stimulation of the understory vegetation.

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1998



Task 9.3 67 acres in the Parsnip Creek drainage (PC5, Sections 4 and 5, T33N, R29W) will undergo selective slashing of the conifer regeneration and small second growth. This will retard the conifer encroachment into the once more open ponderosa pine - Douglas-fir stand. The follow-up prescribed fire will be of low to moderate intensity and will reduce the slashed material and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1998



Task 9.4 A 40 acre unit in the Big Creek drainage (BC8, Section 25, T35N, R30) is designated to undergo selective slashing of the conifer understory followed by a prescribed burn after the material has sufficiently dried. A more open canopy and understory should result from this treatment. The growth of the understory grasses and shrubs should be improved by this treatment.

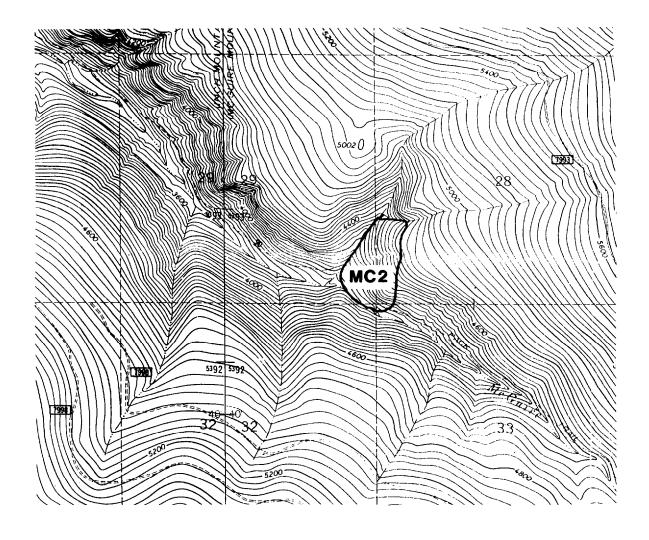
Schedule Slash: 5/1 - 10/31, 1997

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1998



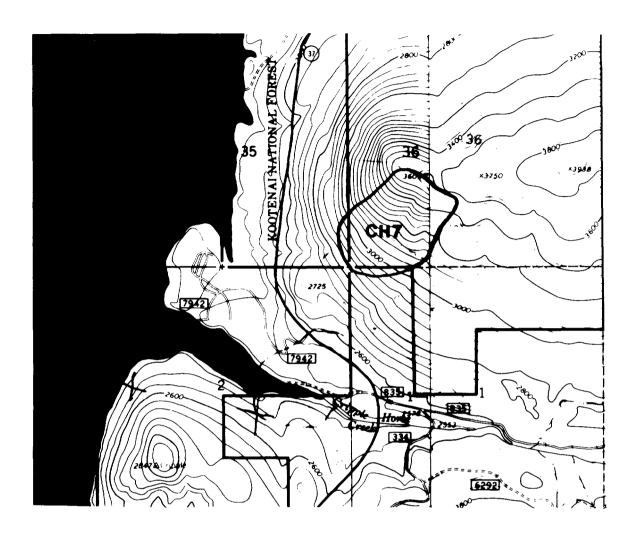
Task 9.5 The large Green Basin #5 unit (252 acres, Sections 12 and 13, T37N, R28W) will undergo selective slashing of stagnated conifers and conifer regeneration. These trees, primarily Douglas-fir, are growing in dense clumps with little or no understory vegetation. The treatment will leave some clumps for security and thermal cover, open some clumps for understory vegetation production, and remove others to allow for expansion of the grass/shrub fields. The follow-up prescribed fire of cool to moderate intensity will be used to reduce the slashed materials and stimulate vegetative growth.

Burn: 4/1 - 5/15, 1998



Task 9.6 A 43 acre unit in the McGuire Creek drainage (MC2, Sections 28 and 29, T34N, R28W) will be selectively slashed and then prescribed burned. The slashing will reduce the conifer encroachment into the unit, as well as the understory vegetative competition. The prescribedburnwill reduce the slashed material and provide growth stimulation of the remaining understory vegetation.

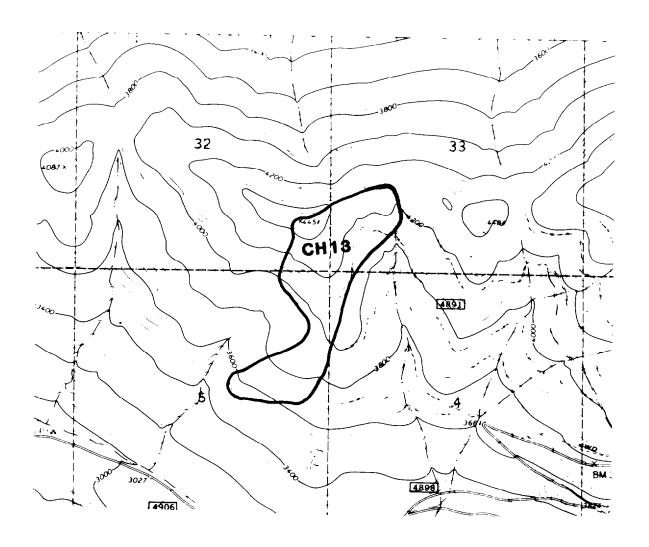
Burn: 4/1 - 5/15 or 9/1 - 10/15, 1998



Task 9.7 The 60 acre Cripple Horse #7 (CH7, Section 1, T31N, R29W) and the 145 acre Cripple Horse #13 (CH13, Sections 4 and 5, T31N, R28W and Sections 32 and 33, T32N, R28W) units will be treated with underburns of low to moderate intensity. These burns will provide some reduction in the conifer encroachment within the units, as well as stimulating growth of the understory vegetation. A fire line may be needed to protect the old growth stand adjacent to the east side of CH13.

<u>Schedule</u> Burn: 4/1 - 5/15, 1997

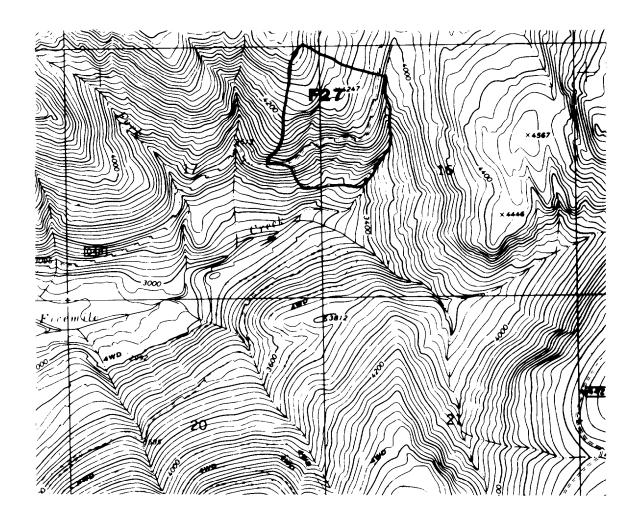
Funding Trust: Prescribed burning.



Objective 10: Rehabilitate bighorn sheep and mule deer winter range on lands adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1998.

Year	Ranger District	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1998	Canoe Gul ch	10. 1	Fivemile Creek	F27	155	STH- C	USFS	*
				F34	60	STH- C	USFS	*
	Canoe Gul ch	10. 2	Al exander Creek	AX10	59	S/B	Trust	12, 594
	Canoe Gul ch	10. 3	Fivemile Creek	F16	161	S/B	Trust	25, 344
	Rexford	10. 4	Parsni p Creek	PC8	105	S/B	Trust	14, 507
	Rexford	10. 5	Phills Lake	PL7	199	S/B	Trust	22, 027
	Rexford	10. 6	C Branch	CB8	172	UBA	Trust	18, 204
	Rexford	10. 7	McGuire Creek	MC1	57	UBA	Trust	4, 724
	Canoe Gul ch	10. 8	Ziegler Mountain	25	89	UBB	Trust	6, 659
Total		8		9	1, 057			104, 059

^{*} Costs estimated only for **slash and** burn and prescribed burn treatments.



Task 10.1 Ahelicopter logging operationwillbe used to selectively harvest mixed conifer stands in two units (F27, Sections 16 and 17, T32N, R27W, and F34, Section 15, T32N, R28W) within the Fivemile Creek drainage. The units, 155 and 60 acres respectively, provide winter range for mule deer, white-tailed deer and limited numbers of bighorn sheep. A follow-up prescribed fire of moderate intensity will be used to reduce the logging slash and encroaching conifer regeneration, as well as stimulate growth of the understory vegetation.

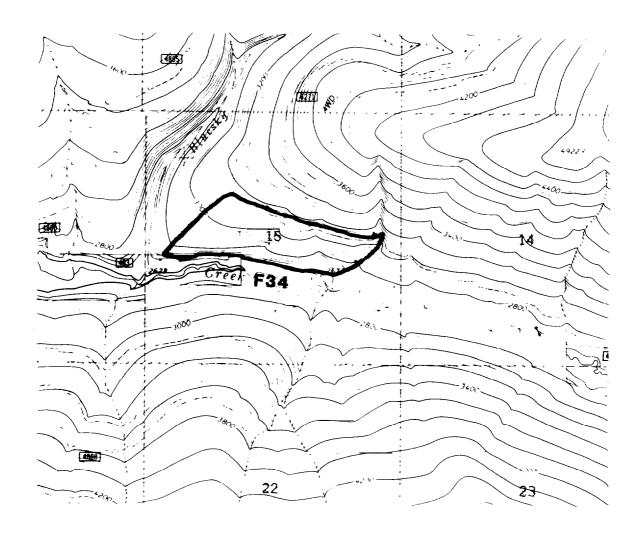
Burn: 4/1 - 5/15, 1999

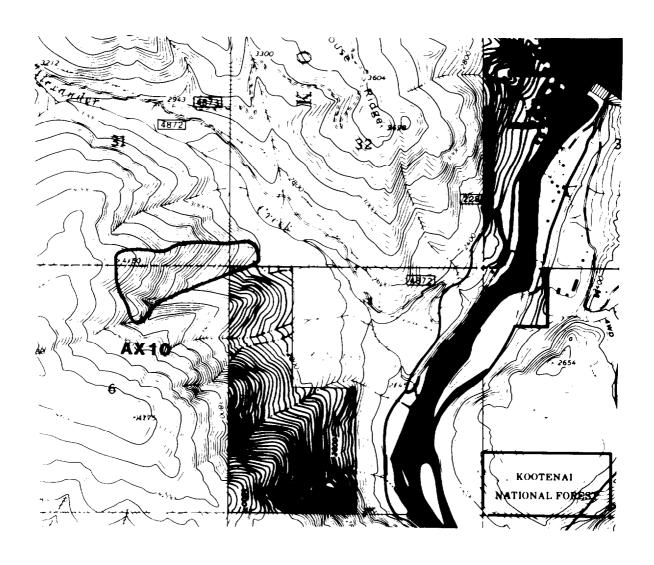
Funding USFS: Sale preparation, administration and slash

disposal.

Trust: Prescribed burning if not covered by sale

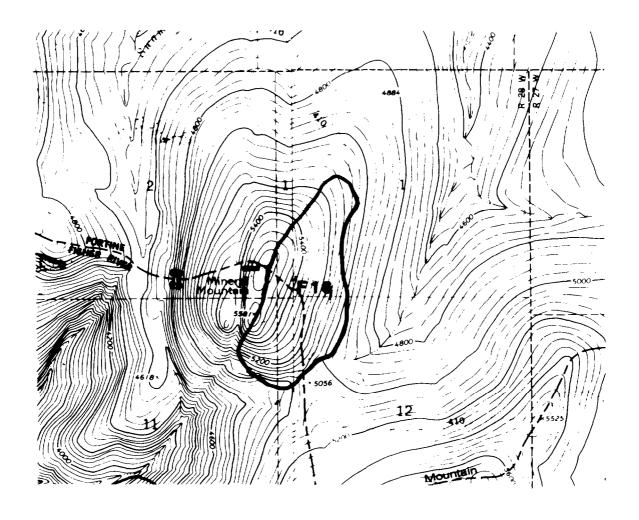
proceeds.





Task 10.2 A 59 acre unit in the Alexander Creek drainage (AX10, Sections 5 and 6, T30N, R29W) has been designated to be treated with a combination slash and burn treatment. The young conifers within the unit will be selectively slashed and allowed to dry. A follow-up prescribed fire, of low to moderate intensity, will be used to reduce the slashed material and provide for growth stimulation of the understory vegetation.

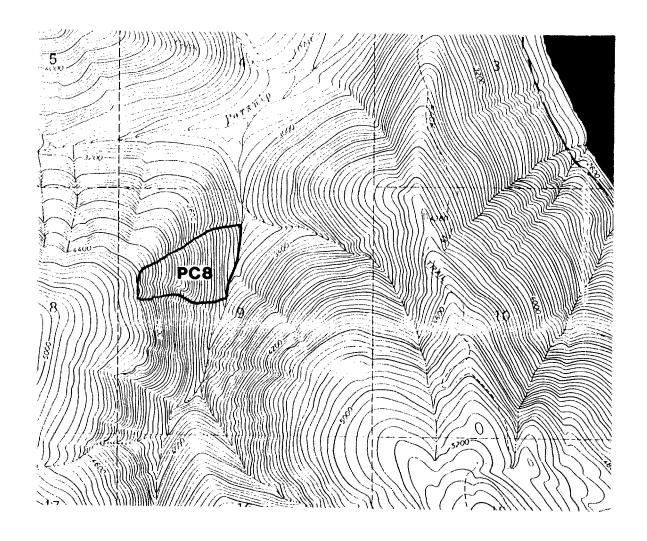
Burn: 4/15 - 5/30, 2000



Task 10.3 A slash and burn treatment of 161 acres within the Fivemile Creek drainage (F16, Sections 1,2,11 and 12, T32N, R28W) will be initiated. Conifer regeneration and young second growth will be systematically slashed to reduce understory competition and provide sufficient fuels for an underburn. A prescribed fire of low to moderate intensity will be used to reduce the understory vegetation and stimulate growth of the grasses and shrubs.

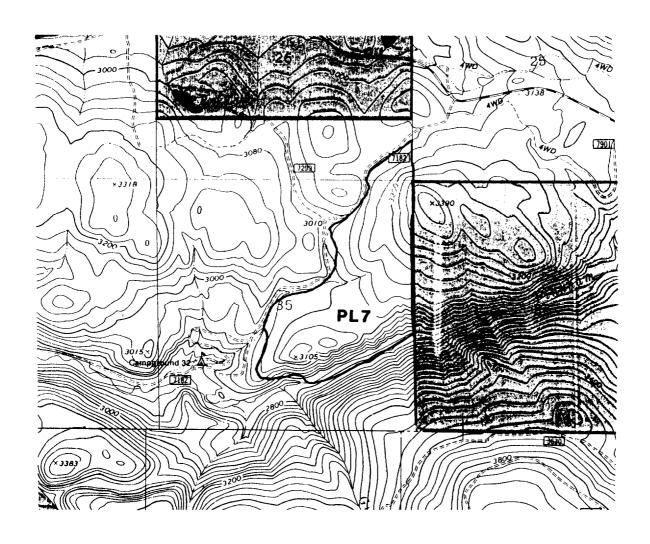
Schedule Slash: 6/1 - 10/31, 1998

Burn: 9/1 - 10/15, 2000



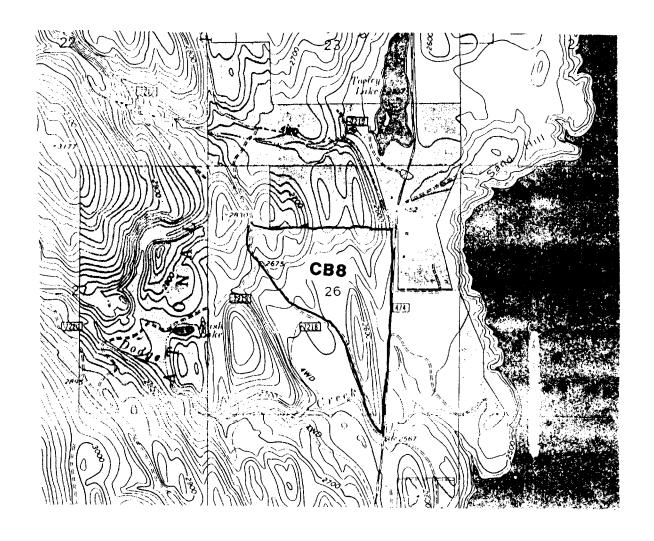
Task 10.4 105 acres in the Parsnip Creek drainage (PC8, Section 9, T33N, R29W) will undergo a selective slashing treatment of the conifer regeneration and young second growth. A follow-up prescribed fire will be used to reduce the slashed material and provide further growth stimulation of the understory vegetation.

Burn: 4/1 - 5/15 or 9/1 - 10/15, 1999



Task 10.5 The Phills Lake area has been designated to be treated with a 199 acre slash and burn treatment (PL7, Sections 26 and 35, T36N, R28W). Selective slashing of the conifer regeneration and young second growth will provide for a reduction in the understory competition. A prescribed fire will be used to reduce the slashed material and provide further growth stimulation of the understory vegetation.

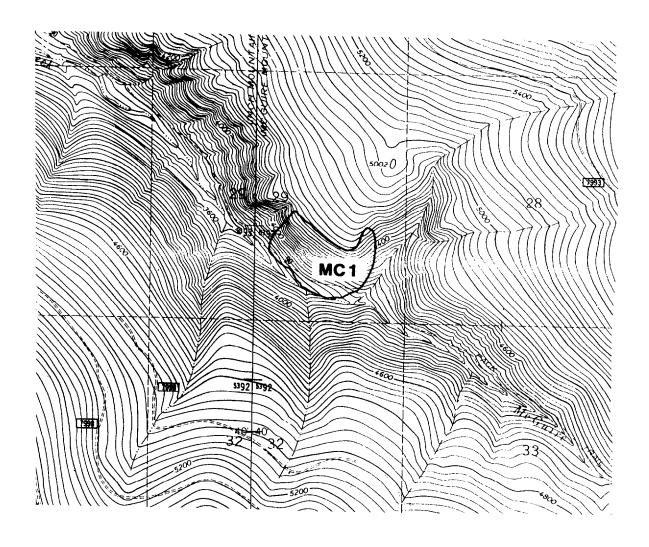
Burn: 4/1 - 5/15, 1999



Task 10.6 An underburn of cool to moderate intensity will be used to reduce conifer encroachment and stimulate growth of the understory vegetation on 172 acres in the C Branch drainage (CBS, Section 26, T37N, R28W). A low to moderate level of mortality within the overstory is desired. Because of the variability in the fuel loadings, a mosaic of habitat conditions should be created.

<u>Schedule</u> Burn: 4/1 - 5/15, 1998

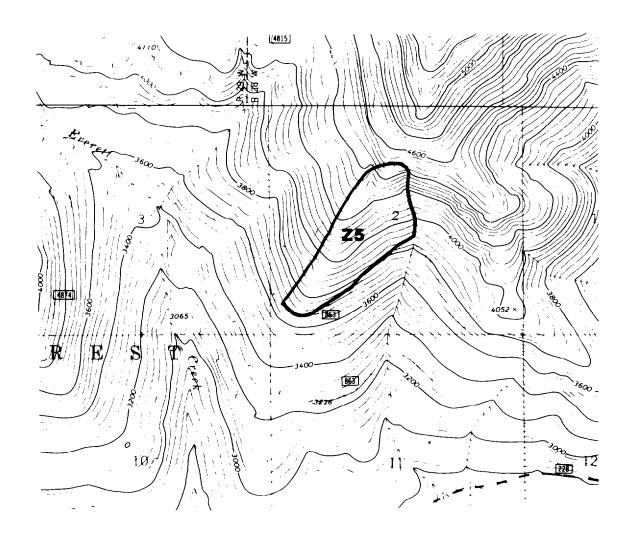
Funding Trust: Burning.



Task 10.7 An underburn of cool to moderate intensity will be used to reduce conifer encroachment and stimulate growth of the understory vegetation on 57 acres within the McGuire Creek Drainage (MCl, Section 29, T34N, R28W). A low to moderate level of mortality within the overstory is desired. Because of the variability in the fuel loadings, a mosaic of habitat conditions should be created.

<u>Schedule</u> Burn: 4/1 - 5/15 or 9/1 - 10/15, 1998

<u>Funding</u> Trust: Burning.



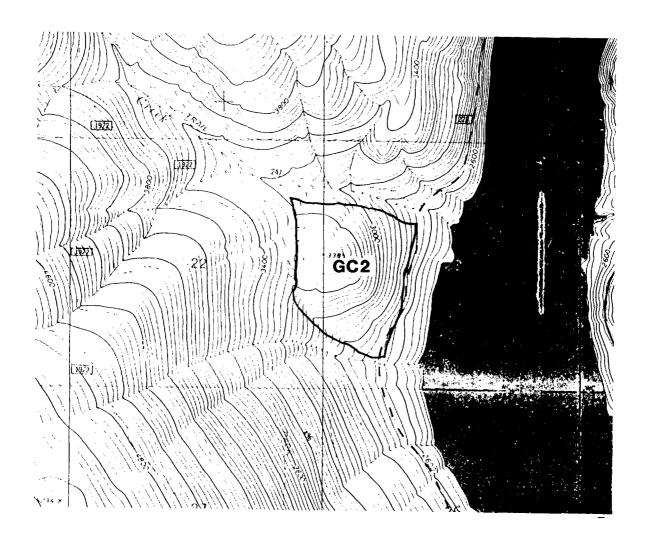
Task 10.8 An underburn of low intensity will be used to stimulate the growth of the understory vegetation, primarily the grasses and shrubs, on 89 acres on Ziegler Mountain (Z5, Section 2, 32N, R29W). A low level of mortality within the overstory is desired.

<u>Schedule</u> Burn: 4/15 - 5/30, 1998

<u>Funding</u> Trust: Prescribed burning.

Objective 11: Rehabilitate bighorn sheep and mule deer winter range on lands adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 1999.

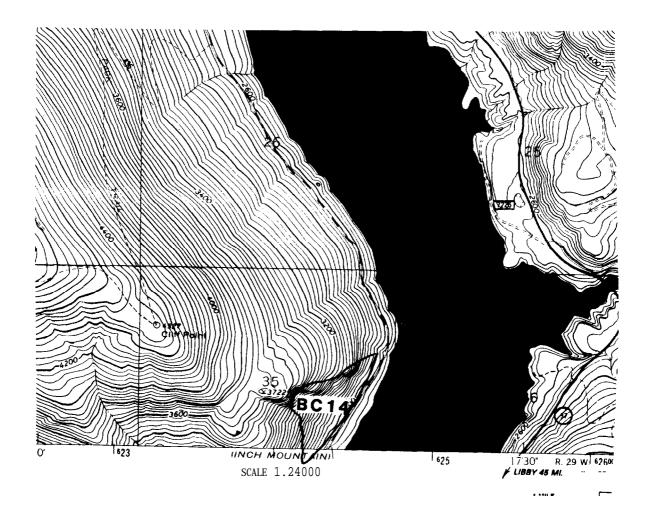
Year	Ranger Di stri ct	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
1999	Rexford	11. 1	Gold Creek	GC2	142	S/B	Trust	17, 467
	Rexford	11. 2	Big Creek	BC14	36	S/B	Trust	9, 167
	Rexford	11.3	Boul der Creek	BD9	177	S/B	Trust	20, 267
	Rexford	11.4	M. Fk. Parsnip Creek	MFP4	152	S/B	Trust	18, 267
	Rexford	11.5	Holdup Gulch	HU2	230	S/B	Trust	24, 507
	Canoe Gul ch	11.6	Dunn Creek	DU6	59	UBA	Trust	14, 899
				DU7	32	UBA	Trust	9, 499
	Canoe Gul ch	11. 7	Fivemile Creek	F21	63	UBA	Trust	5, 619
	Canoe Gul ch	11.8	Bristow Creek	B1	100	UBB	Trust	4, 866
Total		8		9	991			124, 558



Task 11.1

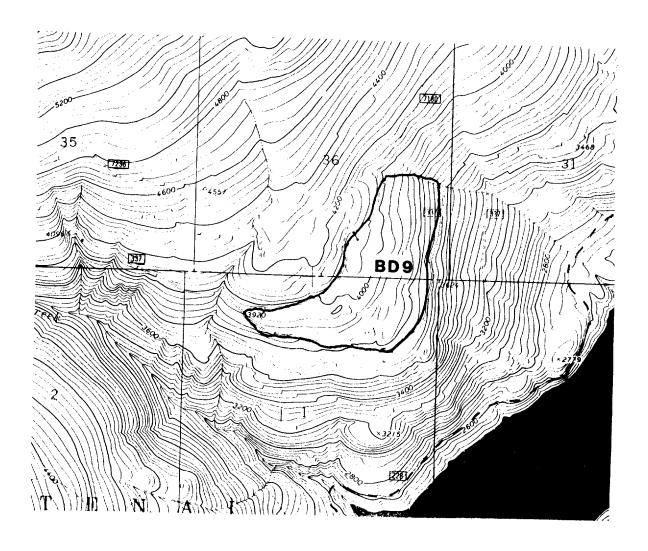
142 acres within the Gold Creek drainage (GC2, Section 23, T35N, R29W) will be treated with a selective slashing of the conifer regeneration and young second growth. This will provide more open understory and overstory canopies, as well as additional fuels for the follow-up prescribed burn. The prescribed fire will reduce the slashed materials, provide further opening of the canopy and stimulate growth of the understory vegetation.

Burn: 4/1 - 5/15, 2000



Task 11.2 The combination slash and burn treatment will be conducted on 36 acres within the Big Creek drainage (BC14, Section 35, T35N, R29W). Selective slashing of the conifer regeneration and young reproduction will provide for a reduction in the understory competition. A prescribed fire will be used to reduce slashed materials and further stimulate plant growth.

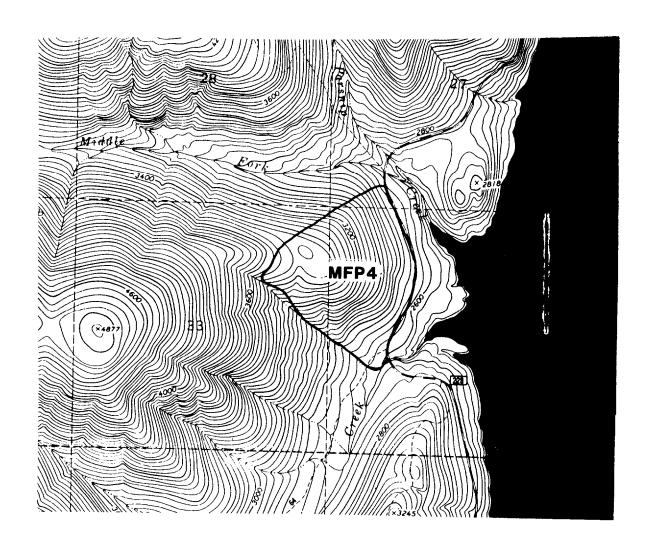
Burn: 4/1 - 5/15 or 9/1 - 10/15, 2000



Task 11.3

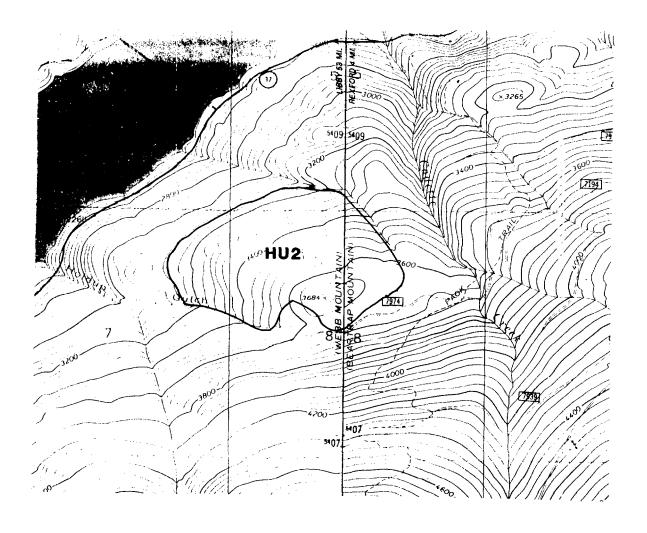
177 acres within the Boulder Creek drainage (BD9, Section 36, T36N, R29W and Section 1, T35N, R29W) has been designated as a selective slash and burn treatment. The selective slashing of the conifer regeneration and young reproduction will provide for a reduction in the understory competition. A prescribed fire will be used to reduce the slashed materials and further stimulate plant growth. Mortality within the overstory, as a result of the fire, should be of a low to moderate level.

<u>Schedule</u> Slash: 5/1 - 10/31, 1999 Burn: 4/1 - 5/15, 2000



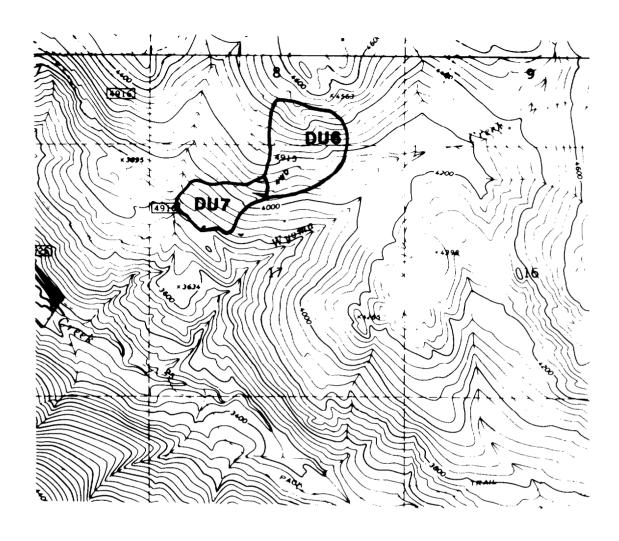
Task 11.4 A 152 acre unit within the Middle Fork of Parsnip Creek (MFP4, Sections 33 and 34, T34N, R29W) will be selectively slashed to reduce conifer encroachment and provide fuels for a follow-up prescribed fire. The prescribed fire should provide additional opening of the various canopies, as well as stimulation of understory growth. A low to moderate level of mortality within the overstory should result from the prescribed burn.

Burn: 4/1 - 5/15, 2000



Task 11.5 Holdup Gulch, an area densely forested with Douglas-fir and lodgepole pine, will have the conifer regeneration and young second growth within a 230 acre unit (HU2, Sections 5, 7 and 8, T35N, R28W) selectively slashed. This treatment will provide more open understory and overstory canopies. Therefore, improved growing conditions for the remaining vegetation. The follow-up prescribedburnofmoderate intensitywill reduce slashed material and further stimulate the growth.

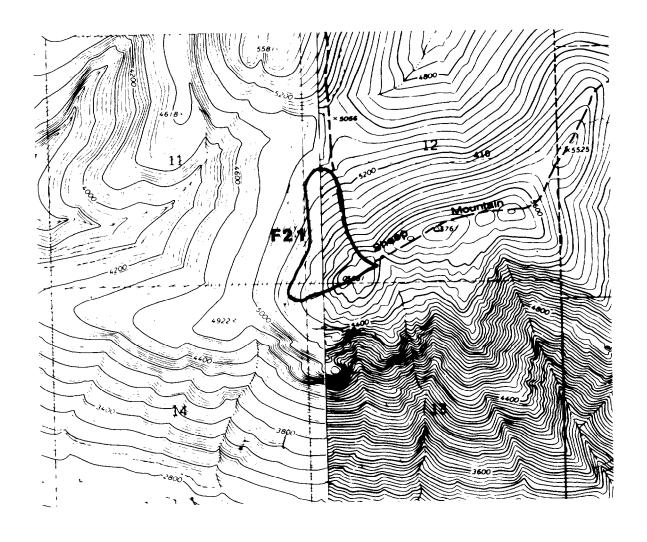
Burn: 4/1 - 5/15 or 8/15 - 9/15, 2000



Task 11.6 Two units within the Dunn Creek drainage (DU6, Sections 8 and 17, T30N, R28W and DU7, Section 17, T30N, R28W) will be treated with underburns of low to moderate intensity. These treatments, 59 and 32 acres respectively, will provide low to moderate levels of opening within the various canopy layers. Growth stimulation of the understory vegetation will also occur.

<u>Schedule</u> Burn: 4/15 - 5/15, 1999

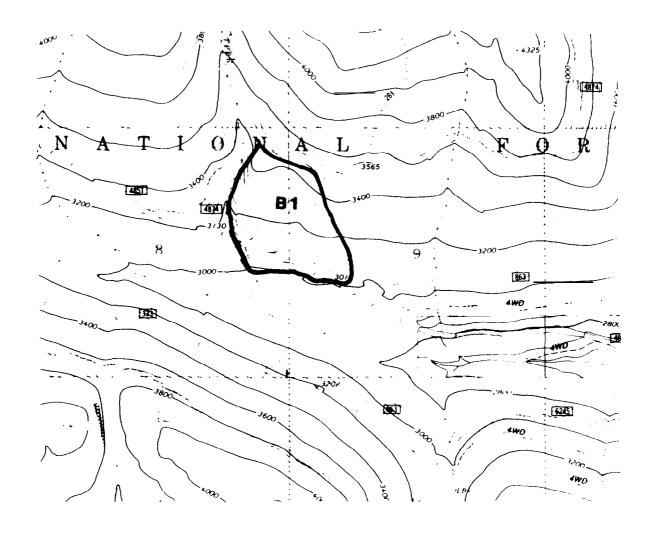
Funding Trust: Prescribed burning.



Task 11.7 63 acres within the **Fivemile** Creek drainage (F21, Sections 11 and 12, **T32N**, **R28W**) will be treated with an underburn of low to moderate intensity. This treatment will provide for opening of the various vegetative canopies, as well as growth stimulation of the understory vegetation.

<u>Schedule</u> Burn: 9/1 - 10/15, 1999

<u>Funding</u> Trust: Prescribed burning.



Task 11.8

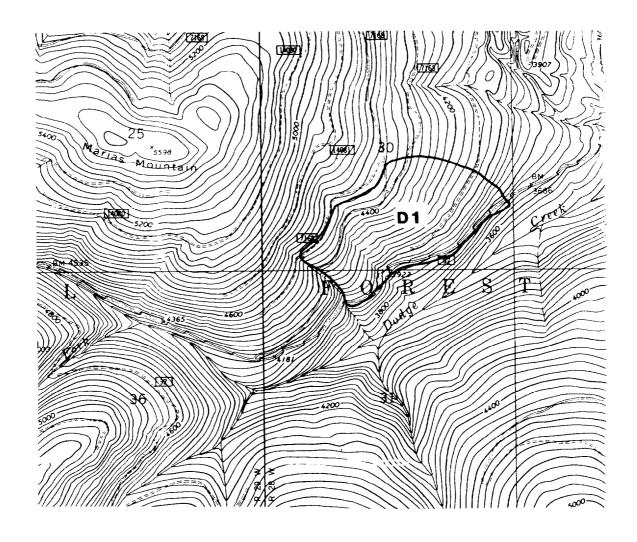
100 acres within the Bristow Creek drainage (B1, Sections 8 and 9, T32N, R29W) will be treated with a cool intensity underburn. This burn will create minimal mortality within the overstory, reduce the understory competition and provide growth stimulation of the understory vegetation.

<u>Schedule</u> Burn: 4/1-5/15, 1999

<u>Funding</u> Trust: Prescribed burning,

Objective 12: Rehabilitate bighorn sheep and mule deer winter range on lands adjacent to Lake Koocanusa and the Kootenai River immediately downstream from Libby Dam during 2000.

Year	Ranger District	Task	Drai nage	Uni t	Acres	Trmt Type	Fundi ng	costs (\$)
2000	Rexford	12. 1	Dodge Creek	D1	165	UBA	Trust	6, 059
	Canoe Gul ch	12. 2 12. 3	Jackson Creek Warland Creek	JC5 WC8	65 64	UBB UBB	Trust Trust	6, 116 4, 786
Total		3		3	294			16, 961

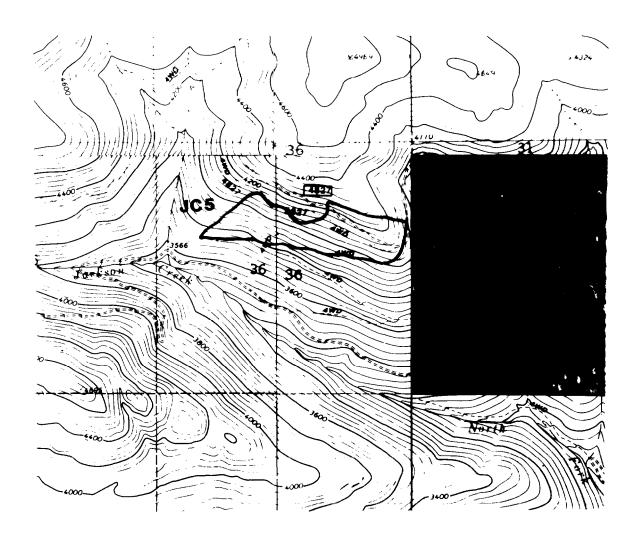


Task 12.1

A 165 acre unit (D1, Sections 30 and 31, T37N, R28W) within the Dodge Creek drainage will be treated with an underburn of cool to moderate intensity. This treatment will provide a reduction in the conifer encroachment into the unit. Burning the understory vegetation will also provide for stimulated growth of the understory vegetation.

<u>Schedule</u> Burn: 4/1 - 5/15 or 9/1 - 10/15, 2000

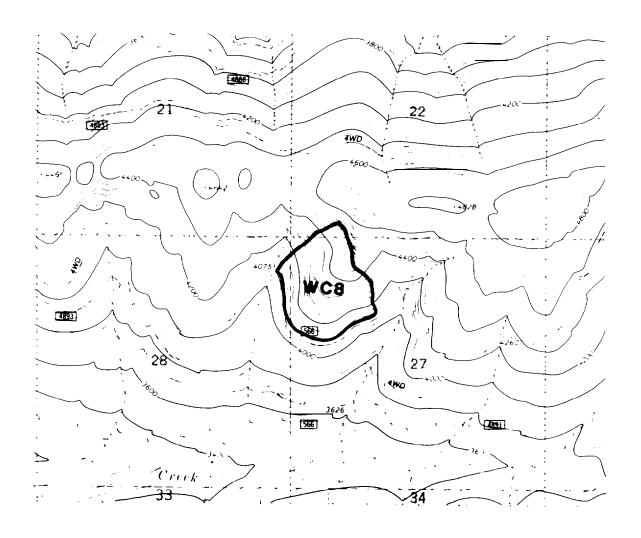
<u>Funding</u> Trust: Prescribed burn.



Task 12.2 Jackson Creek **#5** (JC5, Section 36, **32N, R30W)**, 65 acres, is scheduled for an underburn of low intensity. The primary purpose of this burn will be to stimulate the understory vegetation. Limited mortality within the conifer overstory is expected.

<u>Schedule</u> Burn: **4/1 - 5/15**, 2000

<u>Funding</u> Trust: Prescribed burning.



Task 12.3 Anunderburn of low intensity will be conducted on 64 acres within the Warland Creek drainage (WC8, Section 27, T32N, R28W). Limited mortality within the conifer overstory is expected, with the primary result being growth stimulation of the understory vegetation.

<u>Schedule</u> Burn: **4/1 - 5/15,** 2000

<u>Funding</u> Trust: Prescribed burning.

LITERATURE CITED

- Mundinger, J. and C. Yde. 1985. Wildlife and wildlife habitat mitigation plan for Libby hydroelectric project. Montana Dept. Fish, Wildlife and Parks report, in cooperation with Bonneville Power Administration, Project No. 83-464, Helena, Montana. 50 pp. and appendices.
- Yde, C.A. and A. Olsen. 1984. Wildlife impact assessment and summary of previous mitigation related to hydroelectric projects in Montana, Vol. One Libby Dam. Montana Dept. Fish, Wildlife and Parks report, in cooperation with Bonneville Power Administration, Project No. 83-464, Helena, Montana. 91 pp. and appendices.